

INTERNAL CORRESPONDENCE

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Subject: SLA Users Group Conference Trip Report
Date: May 10, 1990
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HIGHLIGHTS

The Stereolithography Users Group Spring Conference was held on April 30th thru May 2nd, 1990 at the Hyatt Islandia Hotel in San Diego, California.

3D Systems informed the members of their current status and marketing goals for 1990.

3D Systems announced a new resin development and presented the group with sample SLA parts of their new product.

The Parts Curing Apparatus (PCA) has been redesigned with florescent bulbs instead of the mercury vapor lamps currently used. This will alleviate most of the post processing warping being experienced using the ultra violet light.

The NEC286 Process Computer is being upgraded to a 386 with DOS 4.01 software running the laser. This will greatly reduce the amount of building time by eliminating the vector loading wait periods.

3D Systems distributes the first issue of a new bulletin to keep SLA Users abreast of new developments.

DISCUSSIONS

The spring Stereolithography Users Group Conference was held on April 30th thru May 2nd, 1990 at the Hyatt Islandia Hotel in San Diego, California. Ray Freed, CEO for 3D Systems, gave a short explanation on the current growth and expansion goals of 3D. With over two hundred machines now in the market, and a staff of 210, 3D had a 17.5 million

dollar year in 1989 which represents a 4X growth over 1988. Ciba Geigy, has sold Spectra-Physics and had originally intended to make 3D Systems part of the sale. 3D attempted to buy out of Ciba Geigy, but Ciba had changed their minds and have maintained their 37% of 3D Systems. 3D Systems-California is planning to merge with 3D-Canada in the near future. Chuck Hull, president of 3D and the holder of the only patent for Stereolithography has narrowed his original patent in an effort to "Best" the challenge presented by Dupont. The UVP Patent was upheld under re-examination and 3D Systems has therefore put on notice the first potential infringer which is Laser Fare of Rhode Island. Since the Japanese are hesitant to uphold 3D's patent, 3D System has decided to open its own company in Japan and have already hired a president for the new company.

3D Systems used the conference to announce a new "Tough Resin" for use in all SLA systems. The new resin, called XB5134, will be available to the market on June 1st, and will cost the same as the current resins. The XB5134 may not be the ideal resin for all users in that the parts produced will require much more support structures because of a greatly reduced green strength. The XB5134 has increased toughness in its final state and has less shrinkage. 3D Systems presented each attendee with a sample part made from the new material in the shape of a spring, to dramatize the elongation increase of 15% from the current 2 - 3%. The specification sheet for the XB5134 is enclosed in this report as attachment A.

Also announced at the conference was the change made in the current resin used. The current resin, the XB5081, has had problems with bubbles forming in the liquid state. The XB5081 will now be sold as XB5081-1 to denote changes made in the mixture to remove the bubble breaker problem. The XB5081-1 is said to be compatible with the XB5081, however, 3D Systems recommends that we drain the tank of XB5081 and wipe out as much as possible before refilling it with the XB5081-1. At the present time, Locktite, Dupont, Desoto and Allied Chemicals are all working on the development of new resins.

Tom Vorgitch, announced the redesign of the Parts Curing Apparatus (PCA) to replace the ultra-violet lights and internal structure with a series of florescent bulbs to reduce distortion by generating less heat than the current mercury vapor lamps. The new PCA upgrade will be available June 1st, 1990 and will run \$1200 with an existing maintenance agreement, \$2800 to include a maintenance agreement, and \$2000 otherwise. After August 1st, 1990 the price will be \$2400.

3D Systems appear to be working on a lot of new changes and ideas, but are reluctant to release any information prematurely. One change that was announced was the upgrade of the NEC286 process computer to a NEC386. The NEC386 will have a 20MHZ 386/387 processor with 80 MB hard disk and DOS 4.01 software. The upgrade is available July 1st, 1990 for \$10,000 without the NEC286. 3D does not want the NEC286 computers back, and suggest that it be used as an off-line processing machine to prepare and merge files.

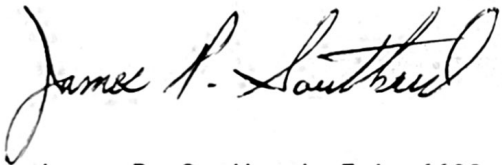
The "Parts Fair" feature of this conference was a huge success and produced some interesting SLA parts. Several large pieces were displayed after having been joined and sanded from smaller SLA parts. many of the displayed items were dyed, painted or coated to produce aesthetic quality models.

May 10, 1990

The SLA Users Group has been requesting a bulletin update from 3D Systems for several years, and 3D has finally complied with our request. The first issue of the SLAte (attachment B) was presented to the Group along with a mailing registration form. The format is to present the new ideas and problem solving techniques along to the users and should prove to be a valuable asset to the SLA operators.

One of the members of the SLA Users Group presented several software programs that he had written for manipulating slice files. These programs are unsupported and undocumented, but have worked successfully for several companies. The one program that caught my attention was a stray vector eradicator. This program does not "fix" a file but allows the user to look at each layer and identify those vectors that he doesn't desire to be built. While this particular task is time consuming and not a practical solution in most cases, it would come in handy on internal problem areas such as the ALS impeller that we just built. The author of these programs offer them at no cost to any of the SLA users.

The majority of time at this conference was donated to problem solving and post processing techniques. This format provided valuable and worthwhile information for all SLA users and was well received by the representatives of the fifty two companies attending. Our participation and continued support is highly recommended at future conferences. The next scheduled fall conference is slated for San Antonio, Texas during the first half of October 1990.



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JPS:jps

Attachment:

- Attachment A - Spec Sheet for Resin XB5134
- Attachment B - Copy of SLAte Bulletin