UNC signs licensing agreements

Computer scientists at the University have signed licensing agreements that will allow two companies to incorporate patented UNC-CH graphics devices into virtual reality machines.

Division Inc., headquartered in Redwood City, Calif., and Ivex Corp. of Northboro, Mass., will pay the University $250,000. Division, which produces complete virtual reality systems, has opened an office on Franklin Street in Chapel Hill to be closer to the researchers.

Ivex primarily builds visual systems for flight simulators. It, too, may set up an office near campus. "This is an exciting development because these licensing agreements are the only way the University can ever sign," said Linda L. Spernuch, interim vice chancellor for graduate studies and research. "We are particularly pleased that an office has been established here in Chapel Hill because that will benefit the local economy and North Carolina's." Future royalties will be a percentage of sales that Division and Ivex record, she said. Both companies will use the PixelPlanes 5 system already in existence and the PixelFlow system now being developed.

Patent Royalties on the Rise

See story page 4

Many people consider the University of North Carolina at Chapel Hill the world leader among universities developing interactive computer graphics. The PixelPlanes 5 system, which we introduced in 1991, is about twice as fast as anything else on the market and is considerably more adaptable for different uses. When completed, PixelFlow will be at least 10 times faster and also will be more adaptable.

John Poulton, Co-inventor

Oared dots. Each dot on a video screen is known as a pixel.

What you have is a bunch of numbers in the computer that represent the corners of these polygons, and along with those is information about each polygon's color and which way it is facing," Poulton said. "The process that turns them into pictures is called 'rasterization.'"

So many calculations are needed to create graphic movement, however, that simple computers cannot do them fast enough, he explained. As a result, the devices must use parallel arrays of computer chips that work together.

Fuchs' original idea for speeding up the movement was to combine faster processors with memory elements on the same computer chips. The concept, which Poulton called daring at the time, continues to work very well.

"There are a lot of smart people doing graphics work at the University," Poulton said. "Chapel Hill could become a center for this industry, which clearly is a growth industry. That Division has decided it is important to be here is a validation of what we have been doing all these years."

Major funding for the PixelPlanes and PixelFlow has been provided by the Advanced Research Projects Agency and the National Science Foundation.

John Poulton, foreground, holds a semiconductor wafer that contains about 70 graphics chips developed by the Department of Computer Science for the PixelPlanes and PixelFlow systems. Poulton and co-inventor Henry Fuchs (seated), John Eyles (standing left) and Steve Molnar recently signed what promises to be University's most lucrative licensing agreement to date. The license benefits the University and North Carolina by bringing business and revenues into the state.