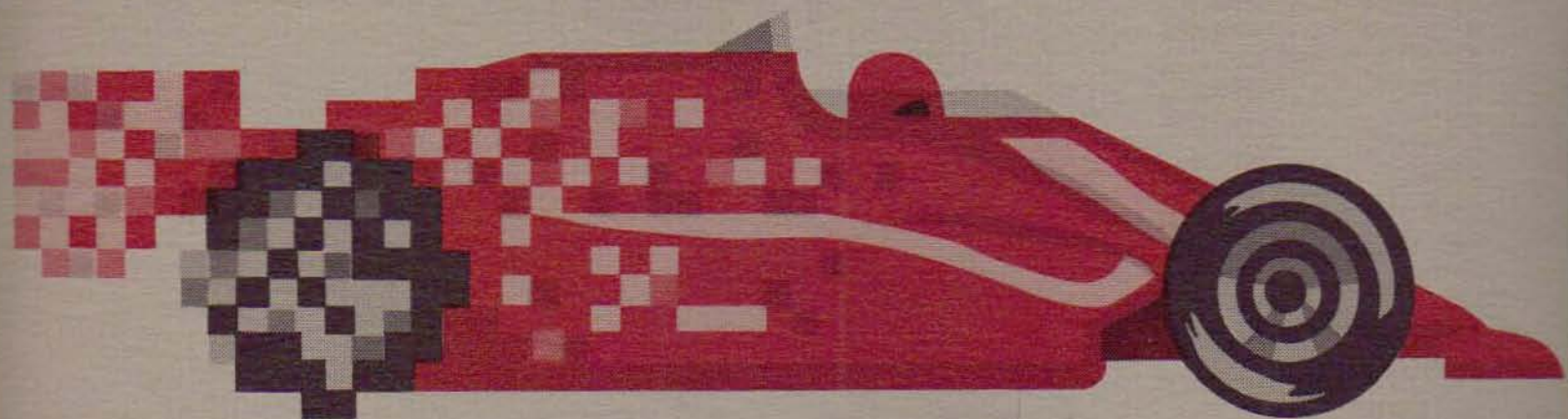


symbolics[™]

Your next step in computing.[™]



Your next step in winning.

newsrelease

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FOR IMMEDIATE RELEASE
258-012/1939b

Company Background

SYMBOLICS MAKING COMMERCIAL SUCCESS OF SYMBOLIC PROCESSING

CONCORD, Mass. — Symbolics, Inc. designs, manufactures and markets symbolic processing systems consisting of computing hardware and software products used in a wide range of applications.

Founded in 1980 by members of the artificial intelligence laboratory at the Massachusetts Institute of Technology, Symbolics today is a world leader in the commercialization of symbolic processing technologies for artificial intelligence (AI) and other advanced computing applications.

Symbolics' customers range from major industrial and "high tech" companies to artificial intelligence vendors, universities, government and defense contractors. Users of Symbolics products typically develop applications either for their own use or for resale to their customers.

Applications developed using Symbolics products involve expert system and natural language development, financial planning, software design, animation, computer-aided design and engineering (CAD/CAE), vision and speech facilities for robotics, industrial automation, and other specialty applications involving diversified fields such as sports and medicine.

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Products for Symbolic Processing

Symbolics' specialized computer systems are considered without equal by users as well as by industry experts. They include both large- and small-scale development and applications delivery systems and they employ numerous proprietary features for optimizing the performance of symbolic processing applications.

Symbolics' hardware is complemented by powerful Lisp and Prolog software implementations. The company's products also maintain compatibility with other systems by offering industry standard data communications interfaces and supporting other programming languages, including FORTRAN-77, Pascal and Ada.

Developing New Markets

Called "the IBM of AI computers" by Electronic Business magazine, Symbolics is driving the commercialization of numerous new markets. The company does this by pursuing aggressive hardware and software development efforts and by encouraging cooperative agreements with software and system vendors.

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Symbolic processing technology is considered by industry experts to offer the most significant long range computing potential for advanced problem solving applications. As a result, Symbolics expects to continue leading the development of markets that address the critical commercial needs of the future:

- o Solving complex problems — Automation of tasks that fall beyond the competence of traditional computers, such as processing incomplete or inconsistent data;
- o Preserving corporate knowledge — So-called expert systems that use Symbolics' hardware/software tools are now able to turn worker knowledge into corporate assets with infinite lifespans;
- o Assisting business professionals -- Engineering, mathematics, medicine and business are areas where symbolic-processing tools can help professionals do their jobs faster and better;
- o Increasing programming/engineering productivity — Rapid prototyping and incremental compilation aid new program and computer development. Customers using program-productivity techniques are reporting design and maintenance productivity increases by factors ranging from two to ten times.

The company recently reported financial results for the third quarter ending March 30, 1986. Revenues were \$30.8 million, up 71 percent from \$18 million in the third quarter of fiscal 1985. For the first nine months of fiscal 1985, Symbolics reported revenues of \$82.4 million, a 72 percent increase over revenues for the same period in fiscal 1985.

More Information Enclosed

For additional information on the Symbolics/TrueSports effort, please refer to enclosed news releases and backgrounders.

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ADA is a registered trademark of the U.S. Department of Defense.

1986

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FOR IMMEDIATE RELEASE
258-059/1707B

SYMBOLICS, TRUESPORTS TEAM UP TO IMPROVE INDY-CAR PERFORMANCE

Cooperative Agreement Gives TrueSports Race Team the Ability
to Use Computerized Evaluation Techniques

INDIANAPOLIS, May 22 — Symbolics, Inc. and TrueSports have announced a cooperative effort that gives the TrueSports team the ability to use advanced computer techniques in the evaluation and improvement of race car performance.

In exchange for sponsorship recognition, Symbolics is providing the TrueSports Indy-Car team with computer hardware and software designed to analyze data obtained directly from race car sensors. Symbolics is the world's leading developer and manufacturer of symbolic processing systems.

Symbolic processing is a means of computing with representations of information that are close to the way a person thinks about a problem. This approach contrasts sharply with traditional numeric computing, where representations of information reflect the way computers store information.

Dave Wible, director of sports marketing for TrueSports, said this is the first time this kind of advanced computer technology has been used in competitive sports. He said the team has been working with the Symbolics system since April when the 1986 CART Indy-Car season kicked off in Phoenix. Here at Indy, the system has been utilized in development and testing sessions.

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"Today's Indy Car is an extremely sophisticated, highly engineered performance machine that borders on being more of an aerospace structure than a traditional automobile," said Wible. "Extracting more and more performance from these cars has become a very complex problem.

"With existing performance monitoring and evaluation tools, the race car engineer is faced with the potential risk of misunderstanding -- or missing altogether -- significant connections between apparently unrelated events. The Symbolics system helps correlate the factual data fast.

"In motor sports, a better understanding of the car translates directly into improved performance and potentially a competitive advantage," said Wible.

Russell Noftsker, Symbolics president, feels this application helps demonstrate that symbolic processing can provide the engineer with "a powerful tool capable of helping engineers and technicians better understand the complex process involved."

At the heart of the Symbolics/TrueSports application is a Symbolics 3640TM super-mini computer system. The software application program is written in the computer language Lisp and relies heavily on color graphics. This software, available exclusively to the TrueSports team, is being used during practice and qualifying for each of the 17 CART Indy-Car races planned for 1986.

Symbolics, a six-year-old publicly held firm headquartered in Concord, Mass., is developing and manufacturing hardware and software systems used in applications ranging from expert systems to training and simulation to CAD/CAM to financial planning. The firm, which is expected to have fiscal 1986 revenues of more than \$100 million, serves customers that range from major industrial high tech companies to universities, government and defense contractors.

In the space of four years, TrueSports has risen from a relatively unknown competitor to one of the most successful Indy-Car teams in CART. During the 1985 season, TrueSports finished third in the PPG Indy Car World Series with a record 10 straight front-row qualifying positions, seven pole positions, and three race wins. The TrueSports car, driven by Bobby Rahal, was one of the fastest qualifiers at Indy.

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*Symbolics and Symbolics 3640 are trademarks of Symbolics, Inc.

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258-059/1948b

Background

ADVANCED COMPUTER TECHNOLOGY

HELPING TRUESPORTS RACE TEAM

MONITOR PERFORMANCE DATA

No machine can replace the human experts who build, repair and maintain professional race cars. But advanced computer technology can provide vital analytical assistance by gathering and displaying large quantities of race data that may contain hidden clues to enhancing performance.

The TrueSports race team's performance monitoring system uses advanced technology to support tuning of the team's March-Cosworth race car. The system includes a Symbolics 3640TM computer from Massachusetts-based Symbolics, Inc., and employs symbolic processing, the same type of advanced technology as the new generation of "expert systems" and other artificial intelligence (AI) applications that are becoming widely used in industry.

"Using symbolic processing technology allows a software program developer or user to deal with highly complex information easily because this technology permits users to think in terms natural to the person themselves, with symbols and relationships, rather than forcing them to think like a computer," said Russell Noftsker, Symbolics' president.

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Important to the TrueSports team was the computer's ability to speed development of new software programming. The initial program, developed to collect and present key performance information to race car analysts, was completed in just 21 days. With a traditional computer, that same program might have taken a year to develop.

"The software was written before our season began," said David Wible, director of sports marketing for TrueSports. "Without the Symbolics equipment, we might have had to go through the next season before the software was ready."

Ease of use and flexibility for future modifications and enhancements are important features of the software. It was designed for "turnkey" operation, so users merely have to turn on the computer, then point via a hand-held mechanical device (called a mouse) that activates a cursor on the color display screen. The screen contains menu prompts that take the user through the computer's commands via simple clicking of a button on the mouse.

"At this time the software is being used only to present performance data in a way that makes it easy for our mechanics and engineers to analyze key parameters, such as engine RPM (revolutions per minute) and gearbox use, ride height and suspension activity, and aerodynamic pressure at multiple points on the car," said Wible.

"Just being able to collect and present those parameters in meaningful screen graphics is a tremendous help, but it barely scratches the surface of the monitoring system's potential," he said.

"For instance, the system parameters can be easily changed according to our evolving needs. We can add parameters like turbo boost and exhaust temperature. We can look at two-lap totals, or three-lap averages, or we can even modify the system to compare the performance of multiple race cars."

Future use of the system may begin to exploit the computer's "expert" potential. TrueSports' human experts will never be replaced as the decision-making components in the race team, but the computer can help them to evaluate certain conditions that produce tremendous amounts of factual data.

"As an example, we can collect historical data for each track in every type of weather condition," said Wible. "At some point in the future, we might face a rainy day at, say, the Pocono race track. We would be able to enter the track humidity and temperature, and the computer would make suggestions on which suspension setups to use that day, based on historical knowledge of how these parameters all relate to one another."

The current configuration includes a Symbolics 3640 computer with dual disk storage devices and operator console with color display screen and mouse. Containing the computing power of the largest "super-mini" computers, the Symbolics system is small enough to fit into a normal size office.

Sixteen electronic sensors aboard the TrueSports racecar collect information during test runs. This information is later transferred to the Symbolics computer for processing.

"Because of the newness of the technologies involved, we're approaching this very conservatively," said Wible. "We're keeping the computer off-track and transferring data manually. But we don't rule out the future possibility of collecting the data in real-time via radio transmission."

The software contains numerous advanced features built on the Lisp programming language and Symbolics enhanced programming environment. Extensive use of state-of-the-art user interface techniques provided by the Symbolics environment make the application easy to learn and use.

"In fact, this system is so friendly it takes about 15 minutes for a first-time user to get comfortable with its operation," Noftsker said. "And when you think about it, that's a lot less time than it takes to figure out how to work the average passenger car."

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SYMBOLICS, INC.

Company Fact Sheet

Symbolics, Inc. is the leading developer, manufacturer and marketer of symbolic processing computer systems that facilitate the use of artificial intelligence and other advanced computing techniques. The company's hardware and software systems are being used in government, commercial and research market, with more than 2000 systems installed at more than 450 customer sites worldwide.

HEADQUARTERS: 4 New England Tech Center
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(617) 259-3600
62,000 square feet

OTHER FACILITIES: Manufacturing, 90,000 square feet; training, 23,000 square feet; research and development, 80,000 square feet; 27 sales offices across the U.S.

NUMBER OF EMPLOYEES: 800

DATE FOUNDED: April 1980

FIRST SHIPMENT: September 1981

DISTRIBUTION CHANNELS: Direct sales, international subsidiaries and distributors, site licensing, VAR agreements.

KEY MARKETS: Major industrial, government contractors, universities, research centers, high technology companies, artificial intelligence software vendors and government agencies.

FINANCIAL: Fiscal 1985 revenues of \$69 million; common stock traded in NASDAQ National Market System (SMBX).

KEY EXECUTIVES: Russell Noftsker, chairman and president
Ernest Godshalk, vice president, finance
John T. Holloway, vice president, technology
John L. Kulp, vice president, research and development
Bruce Rusch, vice president, sales and marketing
Minoru Tonai, vice president, western operations

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THUMBS UP — Russell Noftsker, president and chairman of Symbolics, Inc., found out what it was like to sit behind the wheel of an Indy Car when he slipped into the cockpit of the TrueSports car being driven on this year's CART circuit. In exchange for sponsorship recognition, Symbolics is providing the TrueSports team with computer hardware and software designed to assist in analyzing data obtained directly from racecar sensors. Color screen displays — such as the one shown at top of photograph — are helping engineers tune the car for maximum racing productivity. The software running on the Symbolics system was specifically developed for this application.

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Slug: THUMBS UP

Date: 5/22/86

258-059/1715B