



Spaceport Support

Commercial Benefits—Spinoffs

The toolkit enables CCT to produce custom command and control systems at commercial off-the-shelf prices.

Having a toolkit at the ready is always wise. But how about for launch vehicles, spacecraft control systems, range control—even entire commercial spaceports?

Located on the Space Coast of Florida, the Command and Control Technologies (CCT) Corporation of Titusville provides high-technology computer system development and other services to the space transportation industry. Over the past 15 years, CCT engineers have been tapped for involvement in both piloted Space Shuttle and expendable rocket operations. More recently, the company assisted in upgrading the Space Shuttle launch control system.

Kennedy Space Center's spacecraft ground processing program is known as the Control Monitor Unit (CMU). Capabilities of this program include processing equipment test data for calibration and diagnosis, controlling the operation of equipment in real-time, simulating the operation of the equipment, and processing large streams of measurement data.

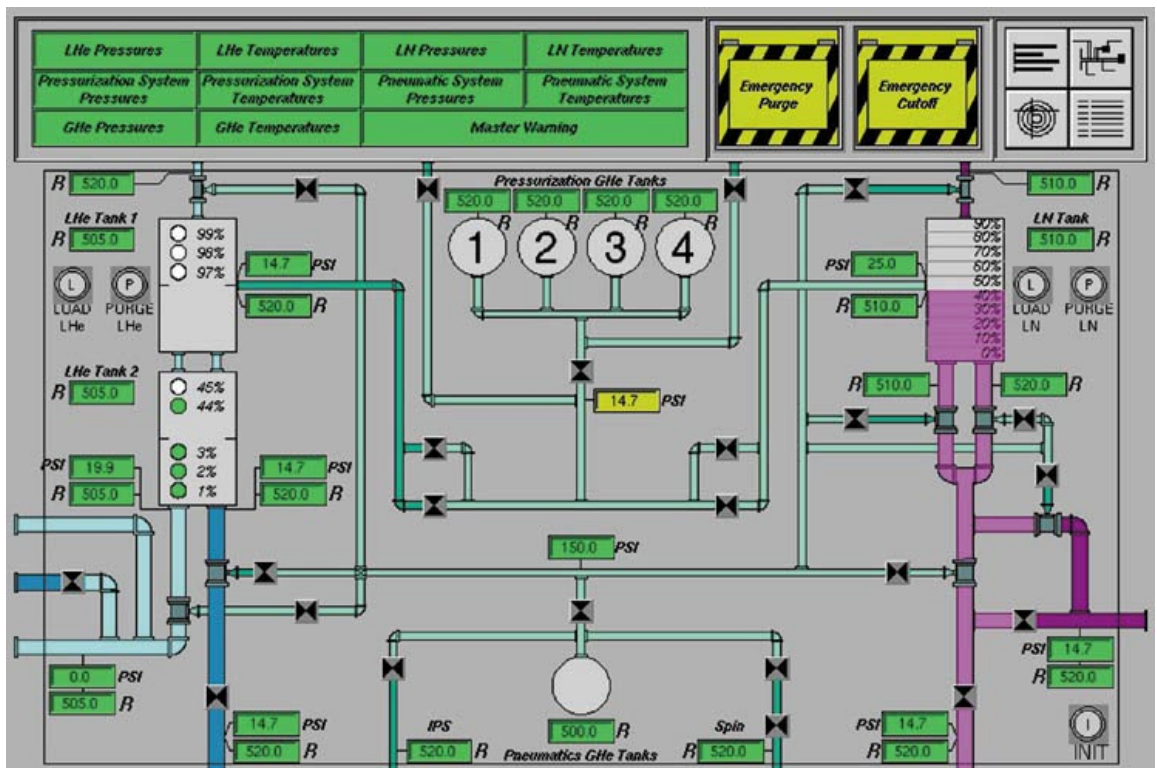
This space center processing technology has been significantly adapted by CCT for use in the com-

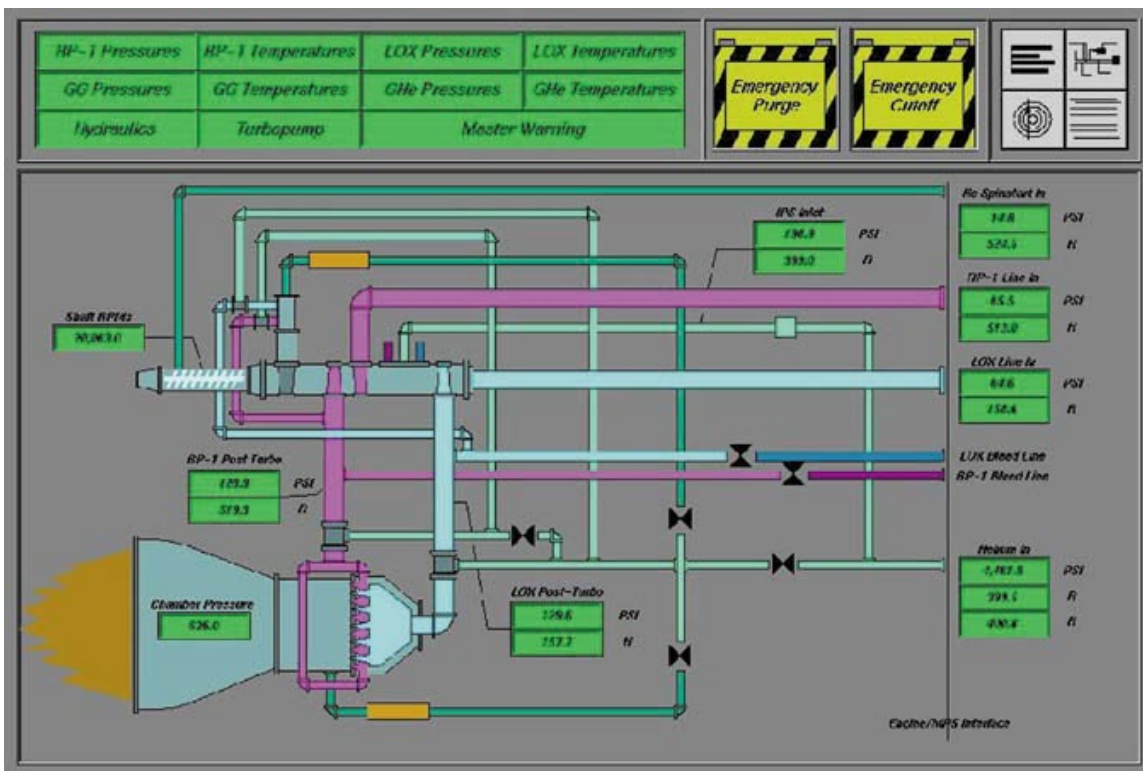
mercial sector. The processing program has been licensed and commercialized through CCT. The company is now marketing the technology to the public under the name Command and Control Toolkit™.

CCT and NASA signed a copyright license agreement in late 1997 to commercialize the copyrighted CMU software. The agreement calls for NASA to license the copyrighted CMU software to CCT in return for royalties and other considerations. The company estimates it will recoup the roughly \$3 million that NASA has already incurred on design and development of the CMU program. The agreement grants CCT exclusive rights to sell the program to new commercial customers in the U.S. launch vehicle industry.

NASA and CCT are also using the technology for creating new Space Shuttle checkout and launching products and procedures that are being put in place. An advanced portable payload tester prototype, for instance, is undergoing evaluation. Capable of being transported to a payload customer site, the mobile system can reduce processing time and cost at the launch site by readying spacecraft

Command and Control Technologies Corporation's Command and Control Toolkit™ displays such information as engine propellant status.





Command and Control Technologies Corporation's Command and Control Toolkit™ displays a variety of information regarding engine status.

more quickly for flight. These virtues are essential for quick turnaround of payloads for 21st century reusable launch vehicles.

The CCT Command and Control Toolkit™ applications are many, including checkout of launch vehicle control systems, range control, ground support equipment control and monitoring, avionics integration and testing, avionics simulations, satellite checkout, and telemetry processing. The toolkit enables CCT to produce custom command and control systems at commercial off-the-shelf prices.

CCT has used the toolkit to design a low-cost spaceport control system for the nation's first operational launch facility, located in southwest Alaska, not owned and operated by the federal government. CCT's toolkit has been used to automate range safety functions at the launch site, along with handling weather data, telemetry and data acquisition, and trajectory planning.

Furthermore, long-term commercial uses for the toolkit are in the offing. These include the remote monitoring of mobile operations, such as offshore oil platforms. Also, remote land operation, using future wireless telecommunications satellite constellates, is among the potential toolkit applications.

In late 1998, NASA selected CCT for the Small Business Subcontractor of the Year Award. The recognition was given to the firm for high technology, real-time software development and computer system design for launch processing and range applications at the Kennedy Space Center. ❖

Command and Control Toolkit™ is a trademark of Command and Control Technologies Corporation