

# FPGA **Highs** and **Lows** *Up in Space and Below the Surface*



The highest-flying Xilinx FPGAs are in instrumentation cards on-board the United States' space shuttle, as well as the Russian SOYUZ spacecraft and MIR space station. The instrumentation card contains two XC3042-70 PQ100C commercial-temperature devices in inexpensive plastic packages that have functioned properly in orbit for several years.

The FPGA depth record was set by a variety of XC3000 and XC4000 series devices used in oil exploration instruments that have

dropped to a depth of more than 15,000 feet (5,000 meters). They help measure important parameters that may point to the existence of oil pockets. Used for days and weeks at a time, the devices have continued working at temperatures of up to 175° C (about 350° F). For future, deeper drillings, designers are now exploring the behavior of Xilinx devices at 200° C (the typical geothermal gradient is 30° C per 1,000 m). ♦