



**Finalists:**

Drilling Microchip  
Saudi Aramco and  
The University of Tulsa

Halliburton Sperry Drilling-Rig  
Pump Diverter (RPD)  
Halliburton Company

Motary Steerable™  
Weatherford International Ltd.

New MXY Gyro™ in Gyro-While-  
Drilling Operations  
Gyrodatta Incorporated

NOVOS  
National Oilwell Varco

PowerDrive Archer High Build Rate  
Rotary Steerable System  
Schlumberger Limited

RHE-USE Process for Reusing Invert  
Emulsion Drilling Fluids  
M-I SWACO, a Schlumberger Company

Talon High Efficiency PDC Bit  
Baker Hughes Incorporated

Turbocaser Express  
Deep Casing Tools Ltd.

## Best Drilling Technology

This award goes to innovators who executed an industry-leading effort during the year that had a significant impact on the industry, onshore or offshore, through drilling innovation.

### **WINNER:** iPZIG at-bit Inclination and Natural Gamma Ray Image Service, *PathFinder*, a Schlumberger Company

The iPZIG at-bit inclination, natural gamma ray, and imaging service is the industry's first image gamma and inclination tool positioned directly behind the bit. The iPZIG system reduces the reaction time for making critical geosteering decisions, and maintaining the wellbore in the targeted interval. It provides at-bit natural gamma ray imaging, along with traditional, total, natural gamma ray; dynamic inclination; RPM and temperature measurements. When used with real-time forward modeling software, the service accurately and cost-effectively optimizes well placement and trajectory while drilling. The software combines petrophysical data from offset wells with the current directional well plan and geological structural information to produce an accurate geological earth model. While drilling in real time, the earth model is continuously updated with the at-bit natural gamma ray imaging measurements to compute the dip of bedding planes. By making time-critical measurements closer to the bit, the iPZIG system optimizes well placement by early bed boundary detection and geosteering to stay in the target zones. The iPZIG system is composed of two separate subs. A lower measurement sub houses the sensor packages, batteries and electronics to process at-bit, natural gamma ray imaging; total natural gamma ray; dynamic inclination; RPM; temperature; vibration and other measurements. A wireless telemetry system transmits the data across the mud motor to the upper receiver sub. The upper sub is connected to the MWD system via a real-time data link for mud pulse telemetry to the surface.

