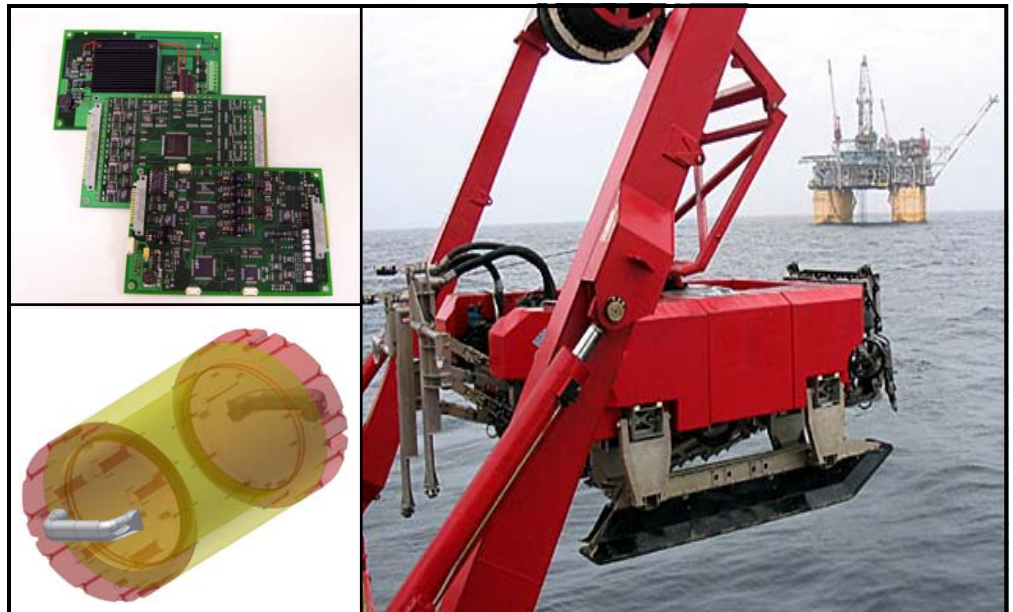




Solutions - Service - Support

Subsea Data Acquisition System
Multiple-port with precise time tagging (Z-TTU)TM



Zupt delivers operationally aware technologies to improve the productivity associated with high cost operations for oil and gas exploration and field development. These capabilities are offered and supported worldwide.

Subsea Data Acquisition System (Z-TTU)TM

Z-TTUTM is a flexible multi-port, precisely timed data acquisition system specifically designed for the harsh environment of ROV operations.

Each port is configurable, galvanic isolated, protected against static discharges (lightning arrestors) and has separate power supplies.

System architecture

The system hardware is based on a RISC type embedded controller. Digital circuitry is implemented in an FPGA. All Interfaces are galvanic isolated against all other interfaces, power supply and control circuitry.

Software environment

The firmware runs from flash inside a RISC type embedded controller. Firmware can be updated "in-circuit" via JTAG or even in the field via the Umbilical/tether. The code is mostly written in assembly, since the operation requires predictable interrupt response times.

Software development environment

Software is written in assembly using a KEIL assembler compiler.

Timing

The system contains a 5ppb (-30C to +60C) OCXO which is disciplined by GPS 1PPS prior to deployment to deliver time tags of +/- 20ns. Once deployed drift with respect to UTC is +/- 1ms per day when disconnected from GPS. All system clocks are phase locked (PLL) to this 10MHz OCXO.

Part Numbers: Subsea Data Acquisition System

Z-TTUTM

Capabilities:

- 12 RS232/422 (selectable by SW) ports.
Each port with individual baud-rate generator, UART and FIFO.
- 12 differential/ single ended pulse input/output.
- 2 analog 4-20mA current loop 12bit/100Khz
- 2 analog 16bit/1MHz each with a separate dedicated CPU with DMA
- 8 range preamplifier,
Full differential input
- 2 frequency counter inputs for Paroscientific Digiquartz
- 1 dedicated high speed RS422 port for uplink
- 1 USB 2.0 full speed (local storage or uplink)
- 1 GB Ethernet (alternate uplink)
- 1 +24V power input
- 1 +24V power output (battery backup)

Options:

- Other (less accurate) timing options available for smaller board set.
- Reduced port count options available—example a 2 port serial and single hi resolution analog port - over 20 delivered to the field to 4,000m.



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