# Scientific Data Sysytems, Inc.
# Warrior Open Hole Well Logging System

The **Warrior Well Logging System** employs advanced software and widely available hardware to provide a cost effective solution to well logging requirements for both open, casedhole and memory applications.
Its main features include:

## Wide Range of Down Hole Tool Support
Scientific Data Systems supports a wide range of down hole tools from many manufacturers. Tools of current manufacture and obsolete equipment is supported.

## Ease if Use with Graphical User Interface
The system is easy to use and the interface conforms to the popular MS Windows standard. Data monitoring is available in windows which may be resized and repositioned as the user wishes. A typical user screen with scrolling log display and data monitors is shown below.
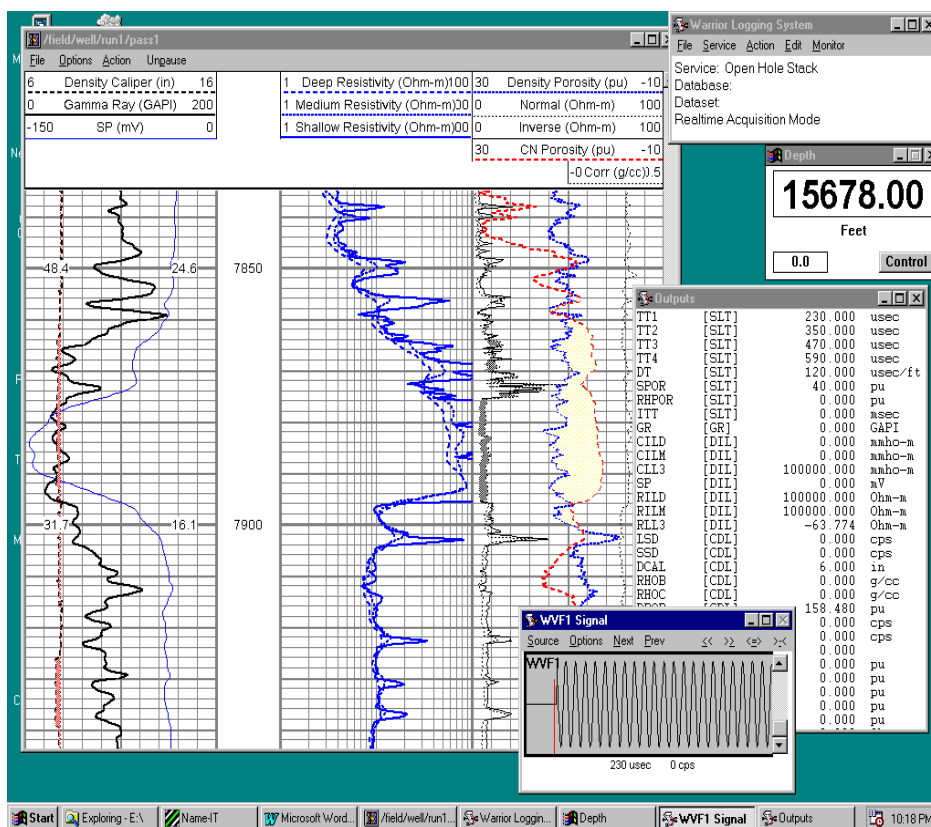


In the example shown at the left the operator is able to monitor the real time scrolling log, view any or all of the acoustic signals generated by an acoustic tool, and also monitor all the log outputs, including depth and line speed. Optionally raw sensor data may be displayed.

Multiple log plot windows may be opened for comparison of, for example, main and repeat log sections. Log plots may be paused and scrolled to any depth and annotations added, while data acquisition continues.

Depth correlation is achieved while logging, with the screen plot and system depth updated until correct depth is attained.

Log curve scales and other presentation parameters may be adjusted while logging and the screen plot redrawn until the desired output is obtained

The hardcopy plotter may be stopped and started at any time, presenting any interval with any desired presentation format.

## Windows Based Computer
The system uses familiar and inexpensive IBM PC/AT™ compatible components to reduce cost and provide worldwide availability of parts etc. Industry standard, off- the- shelf, PC compatible interface components are used wherever possible. The performance of the systems may be upgraded easily as more powerful CPUs and other components become available. Configurations are available for rack mount, or notebook and other portable computers

## Tool Interface and Power Supply
A compact tool interface and power supply may be provided which is suitable for the most downhole tools. The latest Digital Signal Processing (DSP) technology is employed to minimize hardware complexity and maximize flexibility. The interface may be configured for open and / or casedhole services, and incorporates expansion slots for development and upgrade.

## Plotter Support
Generation of the final log print with heading, annotated log sections, calibrations, tool string diagrams, etc., is easily achieved. The system supports most well log plotter types currently in use, including color and the generation of multiple copies using prefolded paper. Two plotters may be driven concurrently and independently. The system also supports a fax format file as a plot output which may then be transmitted to a remote fax machine using a conventional fax modem.

## Typical Specification:

### Software:

Mutli-tasking under MS Windows XP, Vista, 7, 8, 32/64 Bit
System services include:
  Calibrations
  Filtering
  Graphical Tool String Configuration
  Tool String Diagrams
  Real Time Data Monitors
  Preview Mode
  High Speed Multi-Well Log Database
Acquisition Modules include the following services:
  Single and Dual Induction
  Dual Laterolog
  BHC Sonic
  Long Spaced Sonic
  Micoresistivity
  Micro SFL
  Compensated Density
  Compensated and Single Neutron
  Gamma Ray
  Spectral Gamma Ray
  Laterolog
  Formation Tester
  Dipmeter
  *Other services as required*
User Defined Tools and Services
Tool Information Database and Editor
Recalculation (Relog) from raw data
Log Heading Editor
System Setup Control
  Depth Units
  Data Units
  User Interface Language
  Display Parameters
Graphical Log Format Editor
Computed Products
Well Sketch Editor
Merge, Splice and TVD Correction
Directional Survey Calculation
Log Annotations and Curve Labeling
Overlays

Log  Presentation Editor
LAS ASCII Writer and Reader
LIS Read/Write

### Hardware:

Computer
  3.0  GHz multi-core processor
  8 GByte RAM
  1 TByte Sata Hard Disk
  Dual Display  PCIe Graphics
  USB
  DVD-RW (DAT optional)
SVGA 19 inch color rack mount LCD monitor
Rack mount 101 keyboard with mouse or trackball
Tool Interface and Power Supply
  Digital Signal Processor (DSP) 1.6 MSPS ADC
  Integrated USB2 Hub and Flash Drive
  16 Channel, 16 bit ADC
  6 Channel Counter/Timer
  Programmable Filter/Amplifier Boards
  Acoustic Filter
  400vdc, 500ma Power Supply
      Programmable
      Constant Voltage/Current Modes
  External Power Supply Interface
  Depth Encoder and Line Tension Interface
  Surface Sensor Inputs
Plotter, includes support for
  Printrex
  iSys
  Neuralog
  Ferrotec
  HP DesignJet, PaintJet, DeskJet Color
  Epson Stylus
  Dot Matrix, and others
  Fax
Data/Fax Modem (optional)
Uninterruptible Power Supply (optional)
Cables and Hardware for 19 inch rack mounting
Wired and Wireless Surface Sensor Systems.

### Portable and Cased Hole Configurations
Support is available for a wide variety of  open hole tools for both oil field, water wells and other well log applications. Various options for portable systems are also available. Please contact SDS for details.