

# **Advanced Joint Test Assembly (JTA) Telemetry System**

**K. G. Stimmell**  
**Sandia National Laboratories**  
**Albuquerque, New Mexico**  
**Division 5142**



## **ABSTRACT**

We design telemetry systems which instrument weapons in the Joint DoD/DOE flight test program. These telemetry systems gather data which can be used to determine if a weapon functioned as intended.

Traditionally, a telemetry system has been designed to fit the individual requirements of each of the many weapons which have gone into production. The process of defining requirements, designing the system, and getting it into production with the quality assurance demanded of all weapon components takes considerable time, manpower, and money. Due to the rapid advancement of electronics and computer technology, these telemetry systems and their production testers become difficult to support if the weapon service time is extended or if aging test equipment breaks down.

We are designing a telemetry system to support new programs for the next decade and to replace old telemetry systems which can no longer be produced. This multi-system Joint Test Assembly (JTA) is being designed to be modular, flexible, and testable. New techniques for increasing reliability, such as redundancy, error detection and correction, and microprocessor recovery will be employed. The requirements for each program can be met by choosing the necessary circuitry from a “shopping list” and packaging to meet the mechanical constraints for each system. Production specifications and test equipment will be in place to support any telemetry which is composed of the previously-designed modules. Modifications of hardware and software to support individual requirements will be kept to a minimum.

We expect this new approach to telemetry system development to significantly reduce cost and lead time for every program on which it is employed. The use of this telemetry system on multiple programs should also enhance reliability.