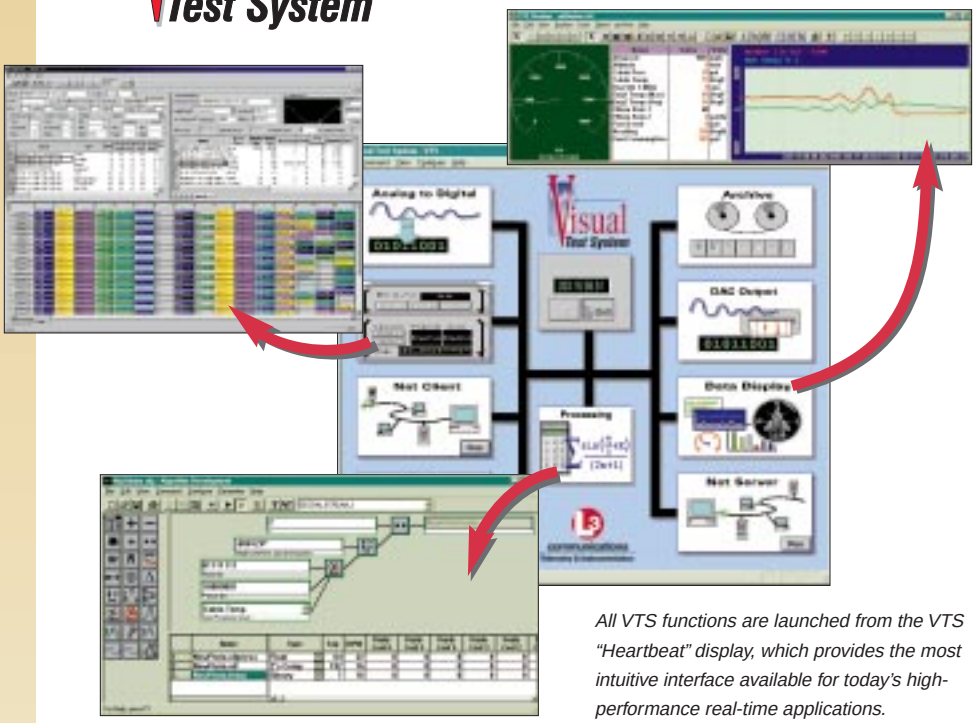
L-3 System Software

VTS Software



All VTS functions are launched from the VTS "Heartbeat" display, which provides the most intuitive interface available for today's high-performance real-time applications.

L-3's Visual Test System (VTS) Software is a complete native Windows NT applications suite for real-time data acquisition, visualization, processing, archiving, and distribution. The VTS Software includes management and setup of the Visual Test System's unique acquisition and distribution modules and project databases. These tasks are accomplished through a standard Windows graphical user interface (GUI) or through optional API and ActiveX interfaces.

The VTS Software is designed with a client/server architecture so that multiple users on a local area network (LAN) can each view and archive data independently of functions occurring on the host. Complex real-time processing is easily defined through an optional drag-and-drop GUI using VTS-generated algorithms or your own C/C++ algorithms.

Features

"Heartbeat" Display

The Heartbeat display sits at the top of the VTS Software applications tree, showing each VTS hardware and software module, as well as the module's status. The Heartbeat display offers a convenient launching point for the functions and applications described below. The display is unique to your software and hardware configuration and can be easily extended to launch and monitor your own applications.

Module Setup

All VTS hardware modules utilize a Windows-compliant display for setup, control, and status, embracing a very similar look and feel of fill-in-the-blank displays, pull-down menus, and radio buttons. For custom applications, you can set up modules using the Visual Test System Software Development Kit (SDK) or the software's export/import capabilities described later.

Telemetry Parameter Management and Simulation

Using the VTS Software, you can conveniently define telemetry parameters with a pair of interacting displays. The first display defines each parameter either in a fill-in-the-blank form and/or table format using traditional spreadsheet cut and paste techniques. Here, an entire row defines a single parameter with each column specifying properties such as name; format; bits per word; if the data is to be archived, displayed or distributed; bit masking; and arguments for real-time EU conversion.

The second display defines the PCM simulation stream so that you can add common static values or invoke trigonometric functions yourself. You can also create PCM streams from archived or user-defined files.

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L3 communications
Telemetry & Instrumentation

FrameView

FrameView renders a multicolor view of the entire telemetry frame in a spreadsheet-type format. Parameters appear in corresponding locations in the frame as they are defined. FrameView helps you set up your decommutator by isolating word locations and missing definitions, or, conversely, words used by multiple parameters.

Real-Time Displays

VTS Software data displays are optimized for performance and are totally configurable in real time without the need for a compilation step. You can select from a number of gather types — from all samples of a parameter to a CVT — limited only by your PC's performance.

You can build your own displays from a variety of data types and graphs (bar charts, cross plots, dials, range charts, strip charts, tables, and text). These displays, along with their properties, can be saved for later recall. Property Sheets associated with each window define properties such as size, color, update rates, units, limit bands (up to 3), and bitmap backgrounds. A simple double-click of the mouse brings up the Property Sheet for modification. You determine the number and size of the displays on the screen (hidden or stored), and you can quickly switch between them as test points or maneuvers change.

The display application is an ActiveX container, where you can copy a dynamic display and insert it into another ActiveX-compliant application like MS Word to view real-time activity in the open document.

Real-Time Processing*

The VTS Software processes every sample or selected raw data in real time using easily constructed complex algorithms chosen from a palette of over 20 mathematical, trigonometric, limit-checking, compression, Boolean, and bit manipulation functions. This construct is formed through a Data Flow diagram depicting the processes with a drag-and-drop GUI. You can graphically "pick up" functions from the palette, connecting them as a process to produce the desired algorithm. Processed data can be directed to any real-time display, or can be archived to storage. Data can also be broadcast over the local area network (LAN).

Algorithm Development*

The VTS Software's Algorithm Development Environment lets you create your own unique processing functions with Microsoft's Visual C/C++ compiler and then add them to our palette of standard algorithm functions. L-3 provides source code for all algorithm functions to aid your development.

Alarm Manager

The IDENT display is the software's center for management and distribution of alarm data. This display is where you define the attributes required to generate alarm conditions, such as the number of out-of-limit samples that will result in message displays, audible alarms, or data logged to files and printers. Up to five bands can be specified to delimit conditions for normal, caution, and critical status. You can group processed parameters to produce a common result if any one parameter in the group reaches alarm conditions. This feature requires the optional Real-Time Processing software.

Seamless Real-Time Data Storage

Data archiving is optimized for performance to capture all instances of all parameters in real time without data loss. Now you can archive all or compressed instances of all or selected prime and processed parameters to disk. Control of recording and playback is easily managed with a virtual "tape deck" window that displays storage statistics. System or IRIG time is embedded in each data block to permit direct file access to specific data for playback. For visual analysis or speed, archived data can be played back from $^{1}/_{32nd}$ to 8 times real time.

Network Support*

Use the VTS Software to distribute contiguous or sampled real-time data from the server to other systems on your LAN. VTS-equipped PCs act as clients so that you can view, archive, process, or output analog data to a strip chart recorder. Data can be broadcast via UDP or TCP to your own applications.

Analog & Digital Output

The VTS Software can be used to send telemetry data directly to the Visual Test System's Analog & Digital Ports module with onboard 1st- to 6th-order EU conversions.

Application Programming Interface (API)*

For applications requiring custom software interfaces, the Visual Test System Software Development Kit (SDK) allows application developers to exploit the features of the VTS Software's networking, archiving, and processing capabilities using L-3's robust API.

Database and Archived Data Exchange

The VTS Software allows you to import or export database and archived data files as ASCII text. You can therefore create or transfer databases from/to your own applications via text or an MS Access or Excel database. Similarly, you can import archived files into your own or third-party applications for analysis.

Telemetry Attributes Transfer Standard (TMATS)*

Use the VTS Software to transfer setup databases to and from other airborne and ground telemetry systems that also adhere to the Inter-Range Instrumentation Group's (IRIG) published specifications for portability and interoperability.

** optional software*

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