

Telemetry - West

DATA VISUALIZATION SOFTWARE

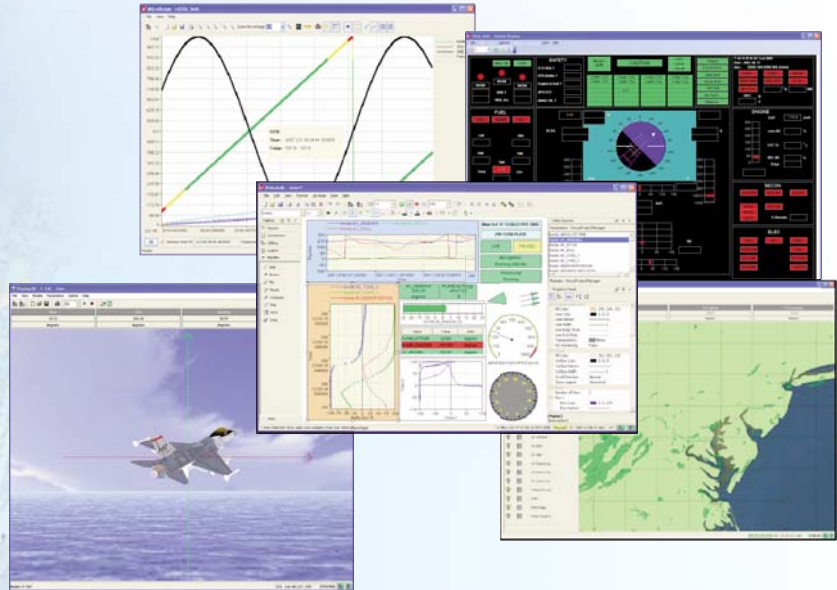
VISTA ADVANCED DISPLAYS

KEY FEATURES

- Advanced Display software includes four separate display applications
 - JADE
 - Microscope Displays
 - 3D Displays
 - Moving Map Displays
- Windows, UNIX, and Linux multi-platform support
- Modern Java-based object-orientated software
- Data can be monitored during design of new displays
- Drag/Drop parameters onto a robust set of drawing primitives and graphical display widgets
- Replay menu bar for scroll-back of real-time displays
- Fine data point analysis utility for post-processing
- Perform microsecond resolution for data viewing/manipulation
- Data comparison and Zooming
- Integrated 3D display/visualization software
- Integrated mapping software
- Allows visualized parameter data to be overlaid on GIS data sets

APPLICATIONS

- Real-time data analysis
- Post-processing data analysis
- Event and alarm monitoring
- Equipment status display
- Data logging displays



L-3 Telemetry West's (L-3 TW) Vista™ Advanced Displays (VISTA-DISP-ADV) is an integrated software application allowing display of instrumentation data in a wide variety of formats. Both real-time and post test archive data may be displayed by the Vista Advanced Displays software applications.

Vista Advanced Displays is comprised of (4) separate display applications. Developed as Java applications, the product offers true multi-platform support.

VISTA-JADE-EDIT - JADE™ is a unique real-time display application developed by L-3 TW for users needing a flexible method for displaying data in an array of custom display formats. JADE features an intuitive user interface and uses a "drag and drop" method to instantly animate displays.

VISTA-MICRO - Microscope is a post-test display and analysis tool for parameter data allowing plotting of multiple parameters in a single strip chart or a series of stacked strip charts from a data archive file.

VISTA-DISP-3D - The 3D display application provides visualization of a 3 dimensional model where the orientation of the model may be controlled by acquired/processed input data.

VISTA-DISP-MAP - The map display application provides visualization of parameterized data overlaid on commercially available GIS data.



Excellence You Can Measure

Vista Advanced Displays Overview

TW combined our most powerful data visualization and display software options into one bundled software package, Vista Advanced Displays. Vista Advanced Displays is tightly integrated into the TW Vista applications software environment and provides a powerful and comprehensive display capability. Each Vista Advanced Displays license (VISTA-DISP-ADV) includes

- Vista (JADE) with Editor and Viewer for real-time display
- Vista Microscope Graphical Analysis tool for archive data file analysis
- Vista 3D displays
- Vista Moving Map

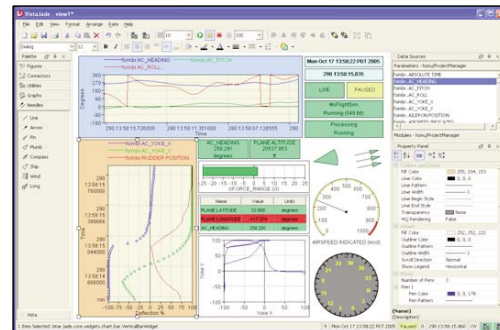
JADE Editor and Viewer

Vista's JADE application provides standard drawing application style features to enable the system user to create objects and animate or drive the displays using Vista parameter data.

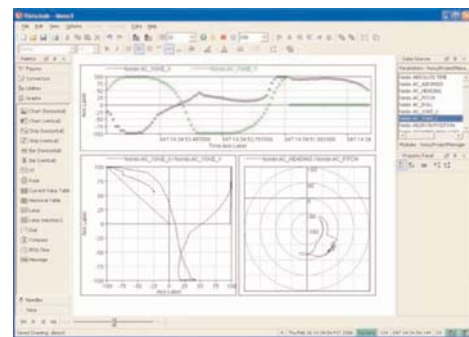
JADE provides an integrated, interactive, windowed environment that combines powerful schematic data visualization with real-time plot and alphanumeric displays. With the JADE editor, a non-programmer can quickly build and use simple or complex data displays in a wide range of meaningful views.

Some features of the JADE display environment include:

- Includes display editor and run time viewer
- Displays real-time and playback data for analysis
- Supports Windows, Linux, Solaris
- WYSIWYG drawing interface
- Automatic or selectable data scaling
- Replay menu bar allows scroll-back of real-time displays
- Monitor data during interactive layout of custom data views
- Share, save, and reuse views
- Rich set of drawing primitives and graphical display widgets
- Drag and drop parameters to animate displays
- Add custom data display widgets and external data sources
- JADE View Widget - easily integrate finished displays into any Java application
- Export all or part of any JADE data views to jpg or png files



During real time, JADE displays are dynamically updated with live telemetry illustrating system status and/or configuration. In addition, multiple data plots and text displays can be created and modified in real time to meet dynamically changing display requirements when required. A replay bar allows the data to be scrolled backwards and forwards (without interruption of real-time data archiving).

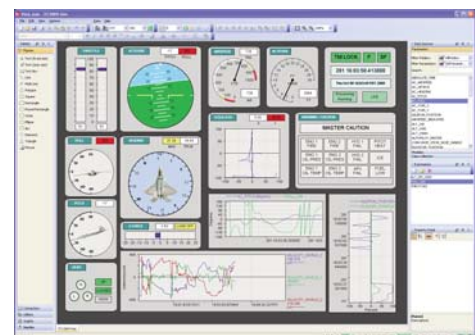


Unique to JADE is the ability to place information from multiple data sources on common displays. For instance, unlike other solutions, JADE allows the display of redundant data stream parameters on the same display and a single display may contain data from multiple data sources.

JADE provides an extensive graphical plotting capability that allows the user to define plot pages, which can be used immediately for real-time display or saved for later recall.

Users can define unique scaling for each plot within a page or can select auto-scaling so that each plot dynamically scales to fit the provided data.

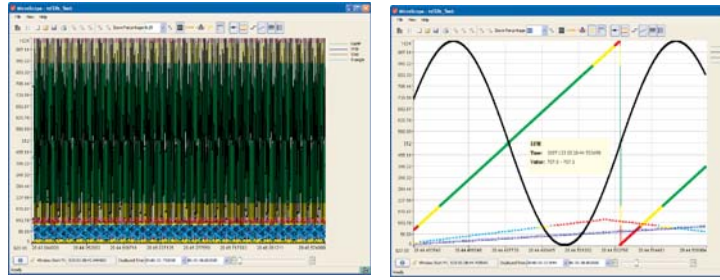
JADE diagram displays utilize a powerful dynamic display capability and are developed using a user-friendly and intuitive editing environment. Using the provided editor, complex schematics can be quickly created and coupled with various dynamic attributes including color, visibility, fill, rotation, and movement. These displays are then bound to telemetry sources in the JADE display environment and saved as JADE views.



JADE alphanumeric displays also provide a multicolumn text display of the current value of parameters in raw and/or engineering format. The displays can be configured to change the color of the individual parameters to indicate their current status (e.g. red for an alarm condition). The parameters may be arranged in groups under a common label or title and rolled up to conserve display real estate if desired.

MICROSCOPE Graphical Analysis Tool

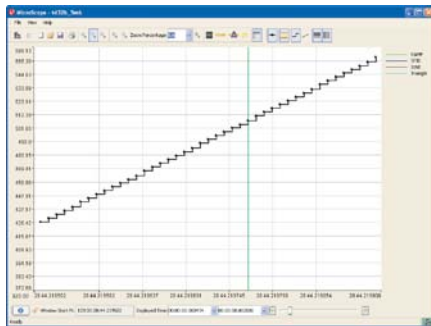
Microscope is a powerful post-mission processing tool ideal for graphical viewing and analysis of pre-recorded high-frequency parameter data. Select parameters of interest and then progressively zoom in to examine specific data points in precise detail, controlling the amount of data displayed in the graph(s) by specifying a time interval with microsecond resolution.



Microscope features include:

- View very large data sets on any time scale
- Search by time or by parameter value with comparison operators
- Choose symbol/pen color for each parameter
- Track up to 8 parameters
- Zoom in and out (X-axis and/or Y-axis, Rectangular Selection)
- Overlay ruler control for precise point-in-time values
- Measure delta values and times between data points
- View and print tabular data by time and parameter value
- Control display attributes (i.e. graph type, grids, step or line plotting, precision, limits, colors, parameter data format)
- Save and recall graph settings

Microscope supports a wide variety of analysis methods including:



- Select a subset of parameters of interest
- Filter data based on time point or value
- Set custom header and footer text
- View and print data in graphical or tabular format
- Print Data Set as step graph
- Export graphs in JPEG & PNG formats

Time	RAMP	SFID	SINE	Triangle
2008-123 00:28:44.267780	64.0 - 66.0		702.0 - 707.0	
2008-123 00:28:44.267820	67.0 - 70.0		710.0 - 719.0	
2008-123 00:28:44.267960	71.0 - 74.0		722.0 - 730.0	
2008-123 00:28:44.267980	75.0 - 77.0	5.0 - 5.0	733.0 - 739.0	12.0 - 12.0
2008-123 00:28:44.267990	75.0 - 77.0	5.0 - 5.0	733.0 - 739.0	12.0 - 12.0
2008-123 00:28:44.267990	76.0 - 81.0		742.0 - 750.0	
2008-123 00:28:44.267960	82.0 - 84.0		752.0 - 758.0	
2008-123 00:28:44.268000	85.0 - 88.0		761.0 - 769.0	
2008-123 00:28:44.268030	89.0 - 92.0	6.0 - 6.0	772.0 - 780.0	14.0 - 14.0
2008-123 00:28:44.268040	89.0 - 92.0	6.0 - 6.0	772.0 - 780.0	14.0 - 14.0
2008-123 00:28:44.268070	93.0 - 95.0		783.0 - 788.0	
2008-123 00:28:44.268110	96.0 - 99.0		791.0 - 799.0	
2008-123 00:28:44.268150	100.0 - 103.0		801.0 - 809.0	
2008-123 00:28:44.268180	104.0 - 106.0	7.0 - 7.0	811.0 - 816.0	
2008-123 00:28:44.268190	107.0 - 110.0		819.0 - 826.0	16.0 - 16.0
2008-123 00:28:44.268220	107.0 - 110.0		819.0 - 826.0	16.0 - 16.0
2008-123 00:28:44.268250	111.0 - 113.0		829.0 - 834.0	
2008-123 00:28:44.268290	114.0 - 117.0		836.0 - 844.0	
2008-123 00:28:44.268330	118.0 - 121.0	8.0 - 8.0	846.0 - 853.0	
2008-123 00:28:44.268340	122.0 - 124.0		855.0 - 860.0	18.0 - 18.0
2008-123 00:28:44.268360	122.0 - 124.0		855.0 - 860.0	18.0 - 18.0
2008-123 00:28:44.268400	125.0 - 128.0		862.0 - 869.0	
2008-123 00:28:44.268430	129.0 - 131.0		871.0 - 876.0	
2008-123 00:28:44.268470	132.0 - 135.0		878.0 - 884.0	
2008-123 00:28:44.268490	136.0 - 139.0	9.0 - 9.0	887.0 - 893.0	20.0 - 20.0

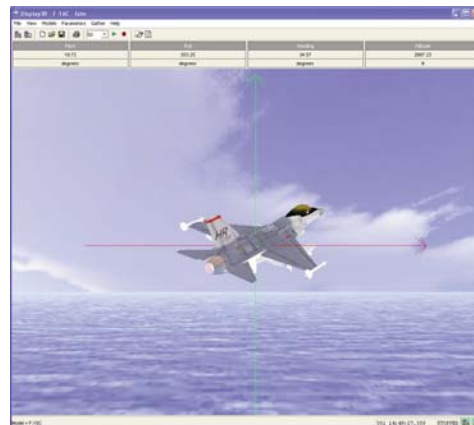
Note: Microscope for MFT PCI systems limited to "Data Gather" archive file format

Vista 3D Displays

An integrated 3D display application allows users to visualize the spatial orientation of the object under test based on data received by the processing system. Different 3D models may be imported by the 3D application to match the customers unique application

The 3D application animates the three-dimensional model using pitch, roll, heading and altitude attributes from the data parameter assigned to each attribute.

A Vista Current Value Table (CVT) data gather algorithm is used to collect a snapshot of the current parameter value assigned to each attribute. These values are used to control the displayed attitude of the model object.



Additional capabilities of the Vista 3D Application include:

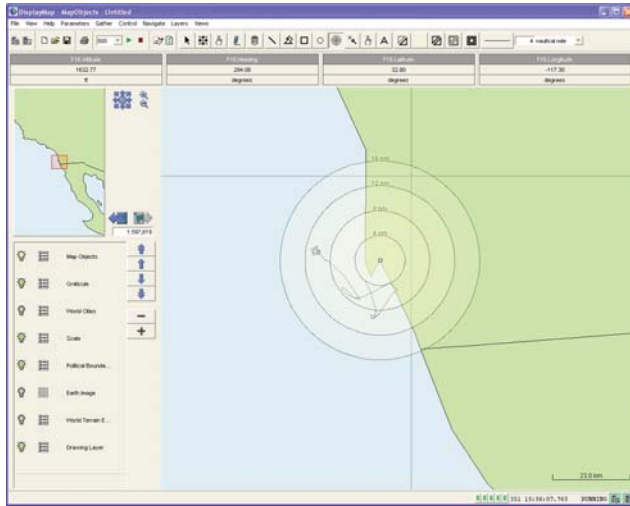
- Interactively change user perspective (Point of view and zoom)
- 3D display includes
 - Pitch
 - Roll
 - Heading
- Adjustable CVT update rates
- Different custom 3D models may be imported
- Altitude Perspective
- 3D configurations saved as overlay in Vista project database

Vista Moving Map Displays

The moving map display application animates one or more models over a map using model-specific heading, latitude, and longitude attributes that are fed data by real-time data parameters that have been assigned to the attributes. The moving map also displays the value of altitude attributes that are fed data by real-time data parameters that have been assigned to the attributes.

The moving map display uses a CVT data gather algorithm to collect a current snapshot of the parameters currently assigned to the altitude, heading, latitude and longitude attributes for each model. The CVT rate is adjustable and moving map configurations may be saved to overlays in the Vista database for subsequent use.

Additional capabilities of the moving map software include:



- Shows vehicle position and track
- Interactively pan and zoom
- Import GIS data
 - Use GIS layers
 - Geographical features (roads, rivers, etc.)
 - Topographical
 - Political boundaries
 - Layer ordering can be changed
- Add user drawing layers such as:
 - Typical drawing objects (lines, text, polygons)
 - Concentric circles - show distance
 - Polygons with distance
- Distance tool
 - Nautical miles, latitude/longitude, angle
 - Multiple points
- Select desired map projection
 - Mercator, Orthographic, LLXY, CADRG, Gnostic

Telemetry-West

9020 Balboa Avenue
San Diego, CA 92123-3507
858.694.7500 800.351.8483
Fax: 858.279.0693
www.L-3Com.com/TW



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Telemetry & RF Products