

PRODUCT BRIEF

Visual Data Analysis You Can Trust

Meet your data analysis requirements efficiently and accurately with PV-WAVE. Users can rapidly import, manipulate, and analyze data into visualizations for sharing across the enterprise. PV-WAVE is an array oriented fourth-generation programming language used to build and deploy VDA applications.



Complex Datasets

Rapid data analysis and visualization combined with flexibility and power make PV-WAVE the choice among experts. By increasing productivity, accelerating development, and illustrating key knowledge contained in data, PV-WAVE gives organizations across a wide range of industries a key competitive advantage.

Forecasting

PV-WAVE allows users to obtain data from multiple sources and offers many options to visualize data of all types: from simple to complex, from small to large datasets, and in standard or proprietary formats. PV-WAVE has multi-dimensional plots, interactive display, and sophisticated and accurate forecasting tools that offer visual images to bring data to life.

Performance Optimization

PV-WAVE utilizes OpenMP, along with an industry unique tuning technique that provides automatic thread control (ATC). ATC ensures optimal execution time performance by automatically setting the number of threads needed for each upcoming array operation.

Advanced Image Processing

The PV-WAVE Image Processing Toolkit includes an extensive set of filters, transforms, and image processing operators.

- Graphical user interface (GUI).
- Image file formats: import/export, most common formats.
- Support for multi-layered images, volumes, signals, animation, and regions of interest
- Point operations: algebraic, Boolean, trigonometric, logarithmic, thresholding, slicing.
- General filtering: edge, noise removal/generation, linear (convolutions, user-defined).
- Advanced filtering: spatial (nonlinear, adaptive), frequency (butterworth, ideal, and more).
- Morphological image processing: erode/dilate, open/close, outline, skeletonize.
- Mensuration: shape (moments, major axis, perimeter), statistical, distance mapping.
- Representation and description: histograms, spatial/spectral textural analysis.
- Image transforms: FFT, DCT, PCT, Hough, Slant, Radon, Wavelet.
- Geometric transforms: scale, rotate, translate, interactive warp.
- Color: linear and nonlinear conversions between grayscale and 8-bit/24-bit color.
- Classification and segmentation.

Advanced Signal Processing

The PV-WAVE Signal Processing Toolkit provides a broad selection of predefined and readily customized digital signal processing (DSP) functions.

- Filter analysis: complex frequency response, analog and digital transfer functions.
- Classical filter design: bilinear transform, windowed FIR and IIR.
- Advanced filter design: least squares and optimal FIR and IIR.
- Multirate filter functions: decimation, interpolation, quadrature.
- Filter realization: FIR/IIR causal and anticausal, multi-rate.
- Statistical signal processing: filter design, Toeplitz matrix factorization, autocorrelation.
- Transforms and spectral analysis: spectrogram, power spectrum analysis, Wavelet transforms.
- Polynomial manipulation: spectral factorization, stabilization, algebraic operations.
- Specialized plotting routines: zero-pole plot of filter, comb plot of digital signal.

Database Connection Toolkit

The Database Connection Toolkit is an add-on to PV-WAVE offer additional specialized functionality — database connections for ODBC, Oracle, and Sybase.

- Establish a direct link between Oracle, Sybase, or ODBC database.
- Use standard SQL syntax to interactively open, query, subset, sort, and filter null values.
- Support for multi-row fetches with adjustable row counts for Oracle and Sybase connections.
- Provide user control over commits and rollbacks for ODBC connection.

PV-WAVE Feature Availability

Features	PV-WAVE Foundation	PV-WAVE Advantage	PV-WAVE Extreme Advantage
4GL scripting language	✓	✓	✓
Robust data I/O functions	✓	✓	✓
Flexible data manipulation	✓	✓	✓
Extensive graphing capabilities (plot, surface, histogram, contour)	✓	✓	✓
Eclipse plug-in for debugging	✓	✓	✓
IMSL C Math Library	✗	✓	✓
IMSL C Stat Library	✗	✓	✓
Advanced image processing	✗	✗	✓
Advanced signal processing	✗	✗	✓

LEARN MORE ABOUT PV-WAVE

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