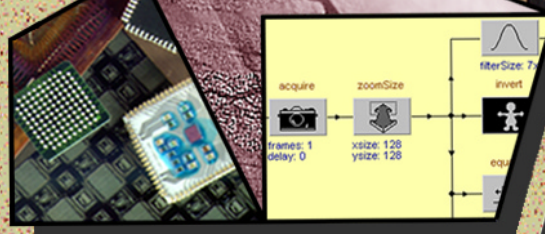


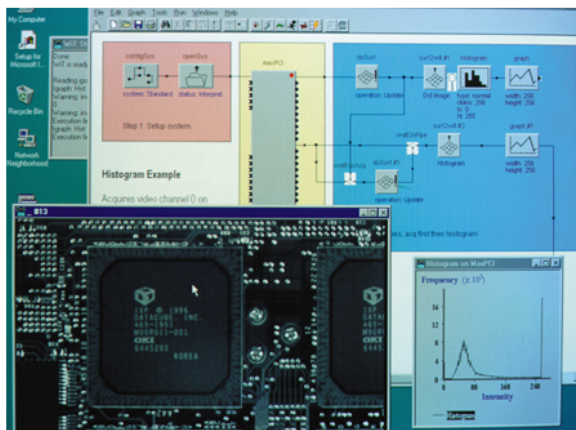


**Vision By
MaxPCI®**



DatacubeWiT

Graphical Application Development Tool



- Employs an easy-to-use graphical user interface (GUI) to reduce the learning curve
- Uses icon-driven development environment to relieve user of many details associated with ImageFlow
- Handles many common IP functions, including convolutions, edge detection, thresholding, and more
- Generates stand-alone application code, and supports user-defined C functions and DLLs for custom application development and optimization
- Delivers real-time performance when used with MaxPCI platform
- Provides host-based performance when used with MaxLC

Graphical Development Tool Accelerates Image Processing Applications

DatacubeWiT provides users with a highly intuitive graphical user interface (GUI) for simplifying image processing application development. It is used to create vision applications for a wide variety of industries, including machine vision and inspection, medical imaging, surveillance systems, research and development, and more.

While DatacubeWiT allows users to quickly develop prototypes of their applications, its value goes far beyond the prototype stage. It can also generate actual MaxPCI application code, which then can be debugged, customized, and optimized with the same user-friendly interface.

DatacubeWiT is based on Logical Vision Ltd.'s WiT visual programming environment. A number of Datacube specialized enhancements have been added including automatic resource management, pipeline concatenation, and a large library of pipeline optimized operators. These operators allow for optimized use of any MaxPCI or multi-MaxPCI configuration as well as the MaxLC framegrabbers. Applications can be run on any configuration of MaxPCI(s) or MaxLC without rewriting software.

Both the hardware-independent WiT operators and the Datacube-specific operators are represented on screen as icons in an easy-to-use GUI. Each application is represented as a block diagram, called an igrph, which illustrates an entire image processing algorithm. Users can create applications with simple drag-and-drop, point-and-click actions that link icons together.

In a finished application, basic WiT operators can be configured to execute on the host system's CPU when the MaxLC framegrabber is used. Automatic resource management and concatenation enable the application to run parts or all of an application on a MaxPCI configuration, providing execution many times faster than those provided by the host processor. These icon operators perform convolution filters, threshold filters, edge detection, acquisition, and display of live video, and more. Using these functions allows developers to easily take advantage of the real-time nature of Datacube's pipeline processing architecture.

In addition to the library of supplied operators, DatacubeWiT supports the use and integration of user-defined C functions and dynamic link libraries (DLLs) for custom application development on the MaxPCI or MaxLC platform. DatacubeWiT also supplies many text and drawing tools that allow users to annotate their igrphs, making them easier to read and understand without examining any underlying code.

DatacubeWiT runs on a Windows NT workstation. MaxPCI or MaxLC programmers can develop and deploy applications on the same Windows NT workstation. They also

have the option of running DatacubeWiT with no image processing hardware present, porting the finished application to a MaxPCI equipped system.

The DatacubeWiT professional toolkit allows applications created with DatacubeWiT to be run stand-alone from the DatacubeWiT visual programming environment. Visual Basic may be used to execute and control the application from a user-written GUI.

DatacubeWiT

Package Components

- Icon-driven graphical user interface (GUI) application development tool
- Uses a multi-threaded scheduler
- Multi-CPU support
- MMX-enhanced
- Library of Datacube-specific icons for use with WiT
- Designed with many enhancements to run on MaxPCI
- Resource manager
- Automatic pipeline concatenation

WiT Visual Programming Software

Multiple ways to view data

- X and Y profiles
- Single and area pixel values
- Graph plots (scatter, line, histogram)
- Images (color map, scroll, resize, contrast)
- 3-D surface plots
- 3-D volume rendering (surface/opacity mapping, cut-planes, viewing angle)
- Zoom and pan
- 16-, 256-, and true-color displays
- Easy to place/remove probes for interactive data viewing

Supported image types

- 8- or 16-bit signed or unsigned integer
- 24-bit color (RGB, HSV, or YUV)
- 32-bit floating point

- BMP, GIF, PBM, TIFF, SUN, XBM, and RAW file formats (read and write)

Supported data objects

- Built-in char, short, int, float, double, string, point, image, and vector
- User definable and C structure compatible
- Nested structures
- Linked lists
- Automatic object compress/decompress

Igraph design features

- Zoom and pan
- Interactive link reshaping
- Interactive placement (drag and drop)
- Annotation support (full graphical editor) for documentation
- User-definable operator icons
- Area select with incremental select
- Cut, copy, and paste across top level and subgraphs
- Undo and redo

Unlimited ighraph flexibility

- Unlimited number of inputs and outputs for operators
- Unlimited branching of links
- Hierarchical operators for hiding complex or reusable ighraphs
- Unlimited nesting of hierarchies
- Unlimited design size
- Unlimited number of operators and links in one ighraph

Execution and debugging

- Variable run speeds
- Animated data travel
- Interrupt, pause, and continue
- Single-step, step-over hierarchical operators
- Enable/disable/bypass links or operators
- Automatic input type checking

Networking

- Computation servers execute icons and run on different computers
- Unlimited simultaneous servers

- Transparent, optimized data transfers

User extensions

- New operators in C with icons and help
- New data structures as object types
- C code generation from ighraphs to form operators or standalone programs
- Visual Basic support for custom user interfaces

Operation modes

- Graph mode: build complete algorithms by designing ighraphs with decision-making capability
- Script mode: explore the rich set of processing functions by executing icons as they are selected with results shown as thumbnail views

Additional Information

For related product information, refer to the following Datacube literature:

[MaxPCI Data Sheet](#)
[PC ImageFlow Data Sheet](#)
[MaxLC-A Analog Data Sheet](#)
[MaxLC-AL Std. Analog Data Sheet](#)
[MaxLC-D Digital Data Sheet](#)

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