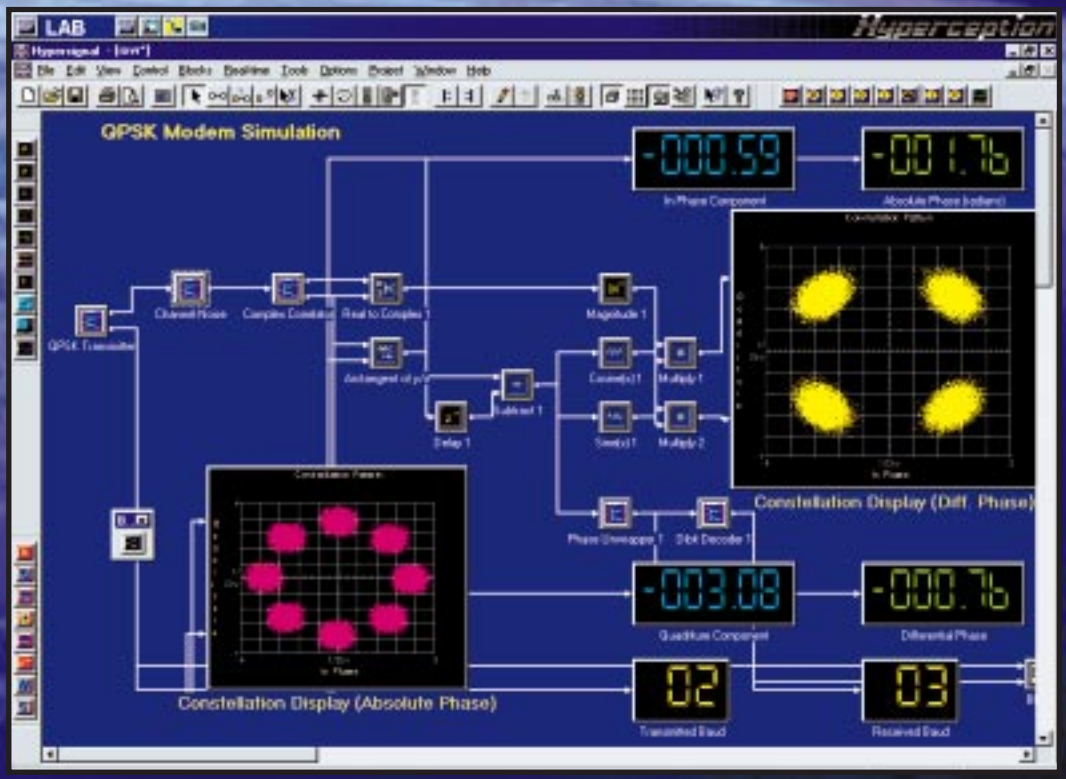
Hypersignal®

Block Diagram

Advanced Simulation Software



The ultimate simulation and systems modeling tool for a wide variety of engineering applications - designed specifically for Microsoft Windows® Operating Systems

Product Document: HSMK2050

Hyperception

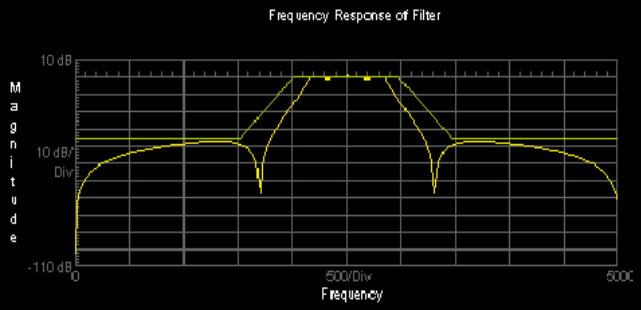
The Leader in DSP

Hyperception * 9550 Skillman * Dallas, TX 75243 * 214-343-8525 * FAX 214-343-2457 * DSP BBS 214-343-4108 * WEB www.hyperception.com

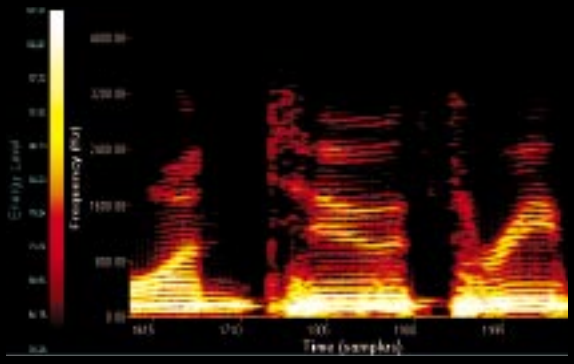
Hyperception, Inc. was founded in 1984 to provide advanced engineering software which combined the power and cost effectiveness of the IBM PC with software methodologies focused on providing drastic improvements in the way many engineering projects are developed.

Hypersignal Block Diagram is the culmination of years of work and research in the area of next-generation visual design tools. Our 32-bit version, v4.0, has benefited from over seven years of customer feedback and engineering improvements. We feel that you will not find a comparable product anywhere, at any price.

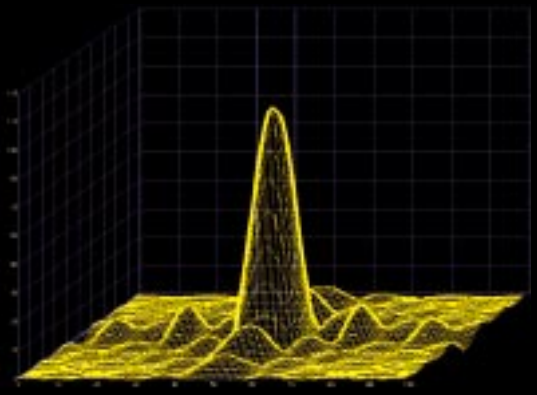
Thank you for taking the time to look over our offerings.



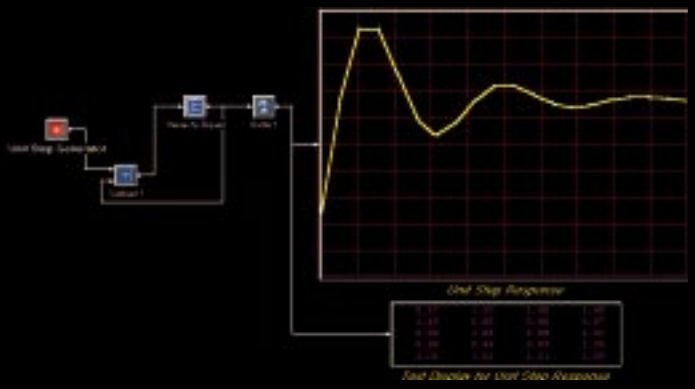
Digital Filter design is included for filtering applications



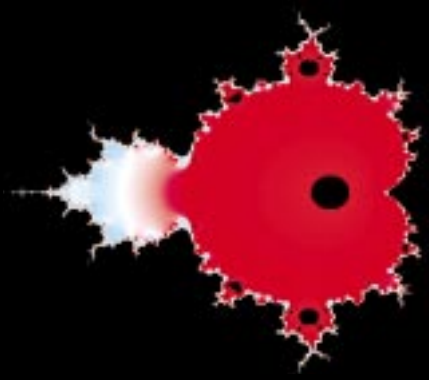
Speech Formant Analysis



Powerful display capabilities allow for a variety of analyses



Control applications, such as open and closed loop design, are supported for quick design and analysis of digital control systems

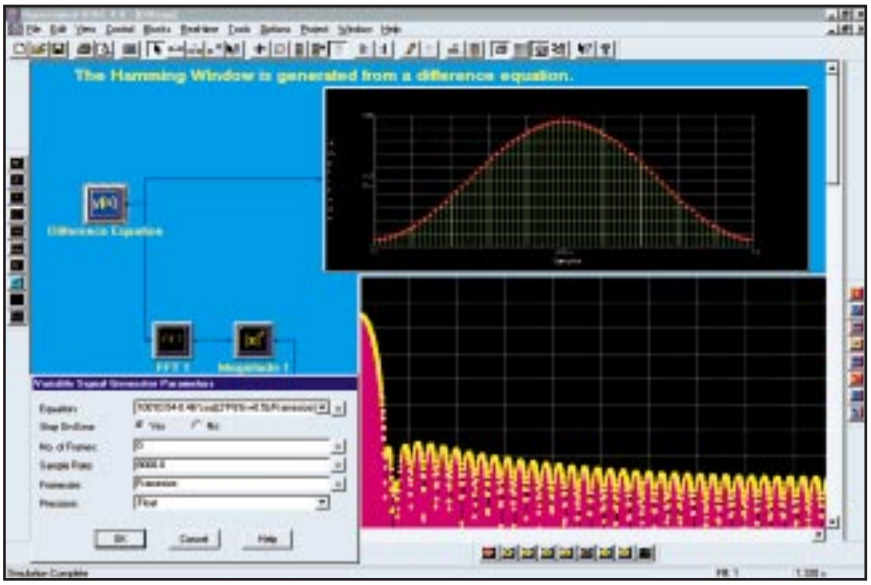


Multi-dimensional algorithms, such as Fractals and Image Processing, are supported.

Hypersignal Block Diagram

Powerful Simulation & Analysis Environment

With these powerful low-cost products for visual design, simulation, and real-time development, many universities and first-time customers may now take advantage of cutting-edge visual design tools for DSP and the many related technology fields.



In the above example, an equation is entered for a Hamming Window function; this is then analyzed in the time and frequency domains, using an FFT and magnitude function

Hypersignal Block Diagram is a complete visual design environment which addresses many facets of today's engineering design projects. This visual programming tool allows for comprehensive dynamic system design and simulation.

Block Diagram is based on several important premises. It must provide for extensibility, efficiency, portability concerns, and rapid development cycles. The concept behind this package is that engineers and technical professionals no longer have to develop all of their code for a project from scratch.

The ability of Block Diagram to be used in many different roles makes it much more versatile than other products, and much easier to justify. Since many projects change scope during the development cycle, Block Diagram lowers both the technical and business risks associated with selecting the appropriate development tool.

We believe that Hypersignal Block Diagram is the most comprehensive engineering environment available for the design, development, and test of DSP and other related projects. Please examine the benefits of using our product in a very wide range of applications which include DSP, communications, simulation, signal analysis, and general engineering modeling. You will see that our approach offers numerous distinct advantages over other design methods.

Block Diagram Capabilities

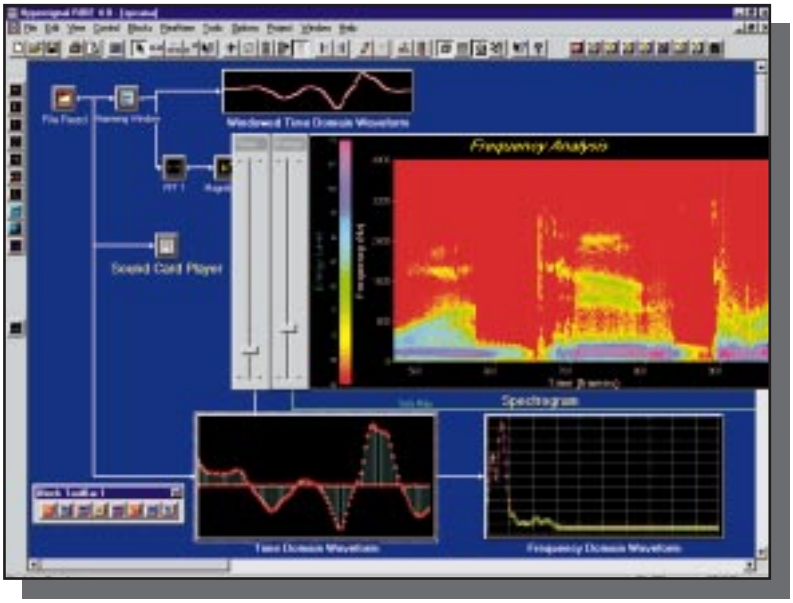
Hypersignal Block Diagram is recognized as the premier visual design environment for simulation, systems modeling, and general algorithm development.

- Comprehensive Visual Environment for many types of Simulation, Analysis, and Systems Modeling
- Flexible **Open Software Architecture**
- Large function library
- Highly efficient architecture allows for **extremely fast simulations**
- **Hierarchical Design** Support for Modular Design
- Optional Automatic **C Source Code Generation**
- **Object-Oriented** Graphical Software Design Environment simplifies project development
- Capable of Real-time visual DSP design for PC-based or embedded DSP applications (Hypersignal RIDE™)
- **Rapid Prototyping** of DSP-based Products and Systems
- Telecom, Speech, Military, Medical, Automotive, Image Processing, and **many other applications**

Advanced Simulation

Visualize your design . . . FAST!

Hypersignal Block Diagram's object oriented visual design environment provides you with a powerful setting in which to create your system, analyze data, and perform many types of simulations.



Process and analyze data from disk files or signal generators, using a variety of displays; data may even be sent directly to standard sound cards!

Large Function Library

Block Diagram contains a comprehensive library of functions which will allow you to target a wide variety of applications. The standard library of functions include: Arithmetic, Communications, Control, DSP, Filters, Frame/Vector, Matrix Operations, Transforms, User Controls, and many more types of functions. We have tried to include the most commonly used functions for a variety of engineering applications thereby enabling users to get their projects up and working with the standard Hypersignal Block Diagram product.

Powerful Display Capability

You will easily be able to display your data with Block Diagram. Within the framework of Block Diagram you can efficiently select from a variety of powerful display types and quickly plot the data at any point in your simulation. Multiple display windows can be opened simultaneously within your design. When combined with the block functions, the display features of Block Diagram will assist you in visualizing and analyzing your data.

Hierarchical Design

Block Diagram supports n-level hierarchical design for advanced system and algorithm prototyping. The ability to use hierarchy in a simulation allows you to shrink entire worksheet designs into single block functions. By using hierarchy, you can visually create custom block functions without having to write any source code or script files.

Conditional Constructs

Block Diagram allows you to implement conditional constructs for program control, looping, or other decision-based logic. Any block function can be conditionally connected to any other block. This allows control over whether or not the block (or group of blocks) will execute.

Recursive Feedback

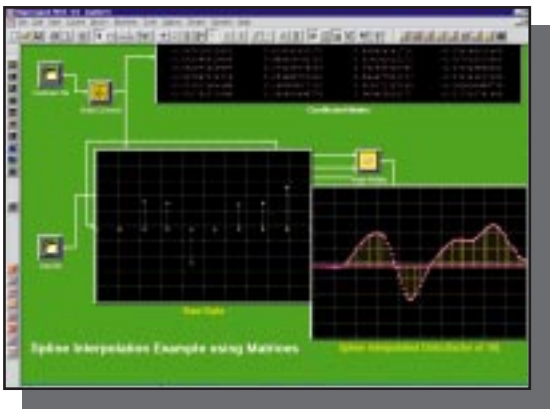
Many types of DSP and numerical systems require recursive structures, or feedback paths. Many adaptive processes also require feedback structures for proper error update. A great deal of work has been put into Block Diagram to address this area of algorithm support.

"On-the-Fly" Analysis

Block Diagram provides interactive control and direct observation of the design at execution time. This allows you to explore "whatif" scenarios and make "on-the-fly" adjustments. By using pop-up menus and user controls such as knobs & sliders, you can easily change design parameters. This capability prevents interruption of the design thought process. This results in more efficient design activities which can lead to a tremendous time savings.

Global Parameters

Allowing the user to globally set or change parameters is important in many types of simulations. Block Diagram allows you to select meaningful, easy-to-understand character names for any of the parameters in the simulation. By referring to these descriptive names, you can quickly modify the values of all occurrences of these global parameters through use of a single location on the main menu.



Matrix operations are supported for a comprehensive numerical design and analysis environment

Dynamic Parameters

The ability to control the parameters of a block function (the frequency of a sine wave generator, for example) with another block as the simulation is running, allows you to model many types of algorithms. The dynamic parameter connect mode of Block Diagram allows you to simply connect the controlling block to the target block for dynamic parameter modification.

Ability to Add New Functions

Since it is possible that your application may require a specialized function which is not included in the standard library of functions, the ability to extend the environment is important. Our product excels in this particular aspect to real-world designs. Since our block functions are actually Windows DLLs which are produced by standard Windows C/C++ compilers, adding your own customized block functions is very straightforward. The included Block Wizard tool makes adding your own functions practically effortless.

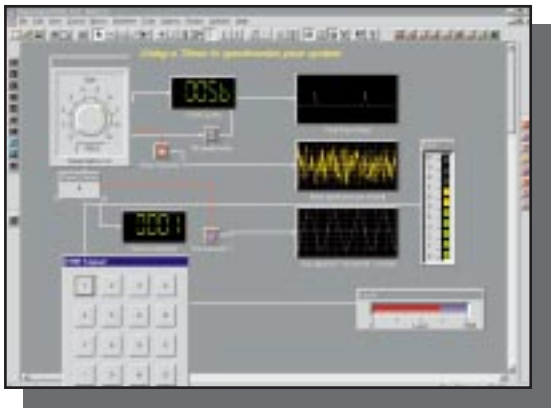
Exceptional User Interface

The user interface of Block Diagram has been designed to facilitate your development. You can easily create custom toolbars which are appropriate to your application. A full Cut/Copy/Paste/Undo editing capability makes it easy to build simulation worksheets. In short, we believe that this is the best user interface for the development of DSP and related engineering projects.

Why is our Tool Best?

How does Hypersignal Block Diagram compare to other "similar" products? First, ours is a **more efficient implementation, and faster** - all of Block Diagram's functions are Windows DLLs which run at executable speed, not interpretive speed. This inherent efficiency tends to be quite important in many applications. The **open software architecture** of Block Diagram coupled with the powerful and robust Block Wizard makes it easy to add user-defined block functions.

The capability for true n-level hierarchy design is another important consideration



Controls, real-time clocks, timers, and displays may be combin to achieve unique time-driven instrumentation applications

for many customers. With this capability, users can create subsystems of the overall design, and share these subsystems with other users. When a modification is made to the subsystem, it can be applied to all systems which use that hierarchical construct.

Yet another capability of our product is that it supports an optional ANSI C Source Code generator to obtain the C source code from a visual design. Few other products have this, and they tend to be considerably more expensive. This is significant for customers since they may not initially perceive that they require code generation. It minimizes the long term risk of both time and expense if later they decide that they do.

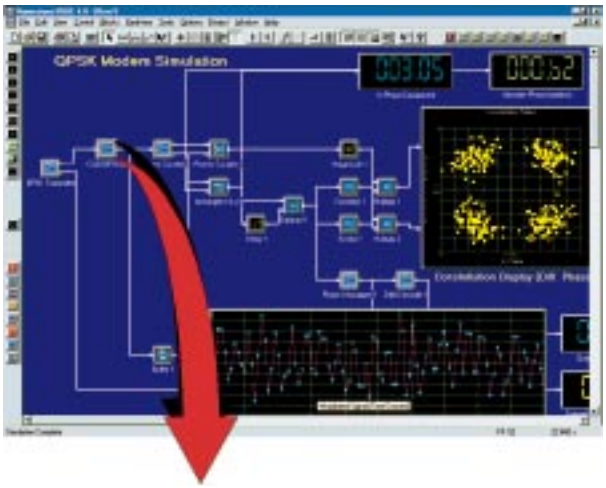
Another point for some is that our product can handle multi-rate and multi-dimensional signal processing. Finally, our products typically cost less than many of our competitors, and we believe that our price/performance ratio is much better than other potential solutions.

Flexible Expansion

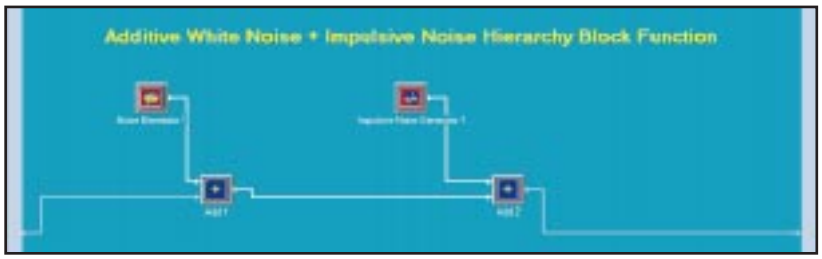
Add your own functions quickly and easily for unique applications

Open Software Architecture

With the open software architecture of Block Diagram, limitless numbers of simulation designs become possible. Transforming your well-thought-out concept into a practical, efficient reality is greatly facilitated through this flexible architecture.



Using hierarchy allows complex designs/simulations to be constucted from a subsytems point of view. This greatly simplifies project creation, and allows for more efficient maintenance and growth.



Because most companies have proprietary algorithms or unique approaches to their engineering projects, it is essential for a development tool to have a solid architecture which allows for expansion at the user level. Hypersignal Block Diagram has been designed from the start to address this particular aspect to real-world designs.

Our open software architecture provides several efficient and workable methods of adding new block functions to the Block Diagram environment. You can easily create your own library of block functions using either Hierarchy or by using C/C++, with the help of Block Wizard.

Use Hierarchy to Build Functions

Hypersignal Block Diagram comes standard with a large library of functions. By using this existing library of routines as a base, you can quickly build new functions through the use of hierarchy.

Hierarchy provides you with the power to shrink entire Block Diagram worksheets into a single block function. The fact that n-level hierarchy is supported means that you can create hierarchy block functions which are made up of other hierarchy blocks. The flexibility of this approach allows you to compress a great deal of functionality into a single block.

Creating your new hierarchy block function is as simple as assigning external inputs or outputs to your worksheet design, and saving it as a new block function.

Build your own functions with a standard C compiler

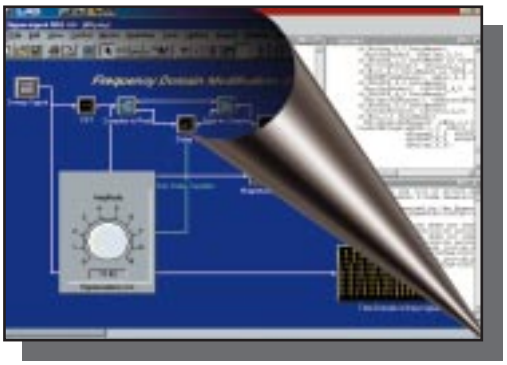
You can quickly create your own custom block functions using C/C++ in minutes by using our Block Wizard tool and a standard Windows compiler such as Visual C/C++. Block Wizard makes adding your own functions very easy since it generates all of the files needed to build your new block function. You don't need to be a Windows programmer to take advantage of the Block Wizard. By following the step-by-step instruction screens you will quickly produce the initial source code for your new block function. The only code you have to add is your algorithm! A make file is even provided for easy compilation of your new function.

Optional Capabilities

Many add-ons exist to enhance capabilities, address new projects, and allow for future growth

Enhance & Customize Hypersignal Block Diagram

Hypersignal Block Diagram supports a number of optional add-on products which will help you explore new areas, and allow for future project growth. We at Hyperception are proud to offer you these tools to help you customize Block Diagram to your application. Please contact us if you would like to receive more detailed information on any of these optional products.



Use the ANSI C Source Code Generator to obtain the textual source code from your visual design!

ANSI C Source Code Generator

This is an extremely useful option to augment Hypersignal Block Diagram. From your visual design, the C Source Code Generator will automatically create ANSI C source code to implement your algorithm. The C source code can be cross-compiled for a particular DSP chip, and executed in real-time on DSP hardware. The portability of the C language permits the resulting source code to be transferred to alternative platforms such as UNIX-based systems and high-end workstations.

HAppI Standalone Application Creation

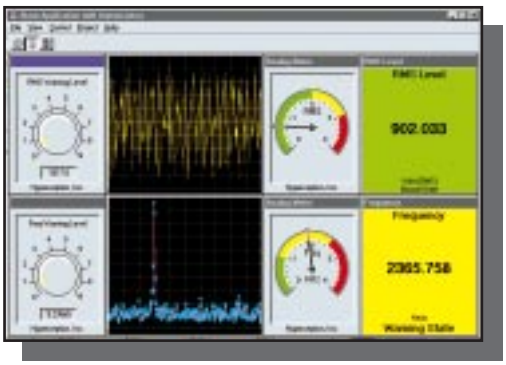
Imagine being able to convert your Block Diagram simulations into stand-alone executable Windows applications! That's the power that the Hyperception Application Interface will give you. After designing your project visually with Block Diagram, the HAppI Wizard will create a standalone Windows application. HAppI has been designed as a low-cost solution for many OEM applications, and you may find that it is the perfect solution for yours.

Image Processing Library

Our image processing library of block functions is designed to take advantage of Block Diagram's open software architecture. A number of 2D image analysis functions are included to facilitate your image processing development.

Advanced Transmission Library

The ATL provides you with a complete set of design and analysis blocks for radio, wireline, and fiber transmission systems. Both baseband and carrier transmission systems can be modeled with a wide variety of line codes and modulation formats. Please contact us for detailed technical specifications.



Run-time application using HAppI -Alarm example for process control and real-time monitoring applications

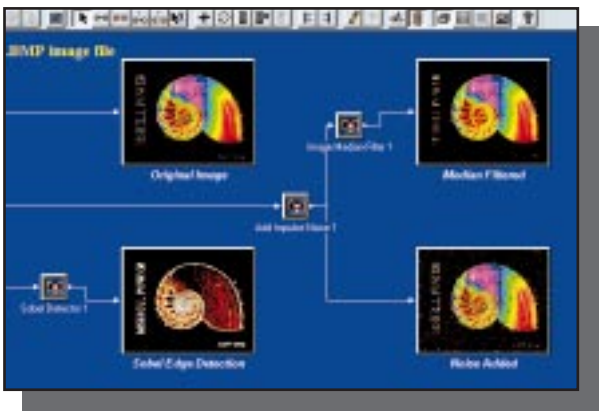
Other Options

A parallel processing tool, Pegasus, is available for multi-processing and other libraries are being developed for various specialized areas of engineering. Contact us for more details.

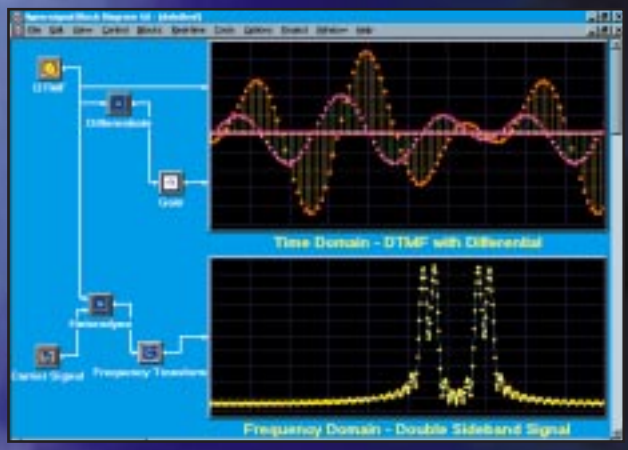
Ordering Information

Part Number:
HSWN2000 - Hypersignal Block Diagram

Options:
HSWN2500 - ANSI C Source Code Generator
HSWN2515 - Image Processing Library
HSWN2520 - Advanced Transmission Library
HSWN5000 - HAppI Run-time Application Builder
HSWN8000 - Hypersignal RIDE



With the image processing library, mix and match 1-D and 2-D functions and displays for a flexible approach to image processing



*Powerful 32-bit **Hypersignal Block Diagram** for Math and Signal Analysis, DSP Simulation, and Algorithm Design.*

__Analyze__ and __simulate__ your system quickly and easily with Hypersignal Block Diagram.

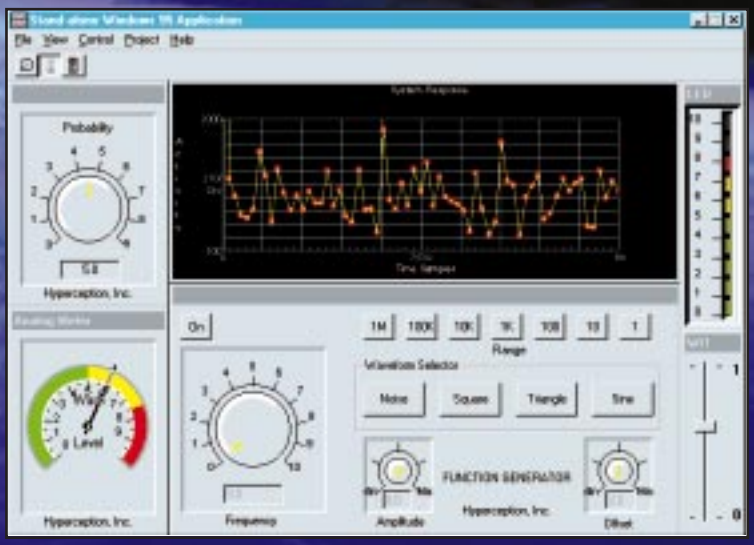
Do proof-of-concept, prototype, and complete finished designs using a __visual approach!__

Even produce __ANSI C source code__ from your visual designs with our ANSI C Code Generator!

Turn your visual designs into stand-alone __run-time applications__ using the HAppl Wizard!

This is great for encapsulating your work into a __simple, easy-to-use program.__

With HAppl, you can select the functions, displays, and controls to be accessible to the user . . . simplifying your design for use by non-technical personnel.



Easily turn your visual designs into instrument-like standalone applications with the Hypersignal HAppl Wizard

International Distributors

AUSTRALIA
Electro-Optics Pty. Ltd., phone: (02) 654-1873, fax: (02) 654-1539

BELGIUM
Eurodis Texim Electronics, phone:(02) 247-4979, fax:(02) 215-8102

BRAZIL
Anacom Software, phone: (11) 453-5588, fax: (11) 441-5563

DENMARK
Dan Metric, phone: (45) 43-71-64-44, fax: (45) 43-71-64-33

FINLAND
Farnell Electronic Services, phone: (90) 739-100, fax: (90) 701-5683

GERMANY
WEZA Projekt Technik GmbH, phone: (40) 524-5044, fax: (40) 524-8905

ITALY
Eurolink n.s.c., phone: (06) 523-0002, fax: (06)522-00031, E-mail: eurolink@mbox.vol.it

JAPAN
Sumisho Electronics, phone :(03) 5228-5633, fax: (03) 5228-5621, E-mail: hyper@iida.sse.co.jp

KOREA
Seoil DSP Company Ltd., phone: (02) 921-4127, fax: (02) 921- 6437

NETHERLANDS
Arcobel Industrial Electronics, phone: 4120-41695, fax: 4120-30635, E-mail: salesnl@arcobelie.nl

RUSSIA
MicroLab Systems Ltd., phone: (095) 485-6332

SINGAPORE
Neurotech PTE Ltd., phone: (65) 773-4300, fax: (65) 777-5606, E-mail: neurotec@technet.sg

SOUTH AFRICA
Technology Marketing Solutions, phone: (011) 882-6837, fax: (011) 640-3804

SPAIN
Novatronic, S.A., phone: (4) 452-0811, fax: (4) 452-1167

SWEDEN
Metric Teknik, phone: (8) 629-03-00, fax: (8) 29-08-56

SWITZERLAND
MSP Friedli & Company, phone: (31) 972-3152, fax: (31) 971-4643

TAIWAN
Bentech Computer & System Corp., phone: (02) 695-8906, fax: (02) 695-8911, E-mail: benjamin@ms1.hinet.net
Exartech International, phone: (02) 977-6828, fax: (02) 977-6829, E-mail: idpt182@tpts1.seed.net.tw
Neat Technology Co. Ltd., phone:(02) 297-6634, fax:(02) 297-6632, E-mail: neattech@s2net.org.tw

UK
Kane Computing, phone: (44) 0-1606-351006, fax: (44)-0-1606-351007, E-mail:kane@kanecomputing.com

For more detailed information, please contact:

Hyperception, Inc.
9550 Skillman LB 125
Dallas, TX 75243
Voice: 214-343-8525 Fax: 214-343-2457 BBS: 214-343-4108

Internet Information Sources

World Wide Web: www.hyperception.com
FTP: ftp.hyperception.com
Internet: info@hyperception.com
Automated Information Server: info-server@hyperception.com
DSP Board Locator Service: dsp-locate@hyperception.com

Hyperception

Printed in USA