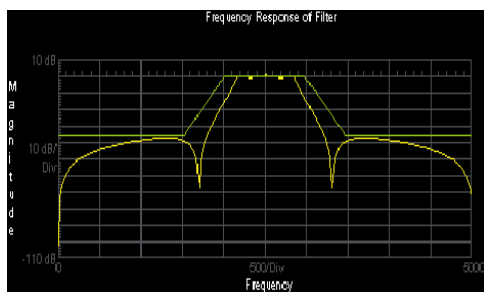
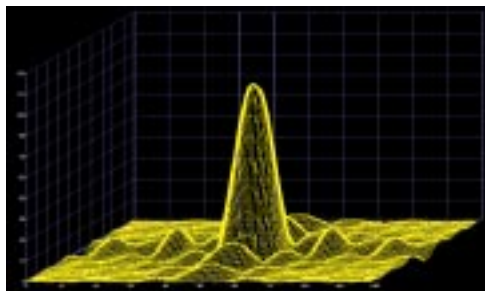


***PC-based Simulation and Modeling!***

**Rapid Prototyping**



**Fast Simulations**



**Expandable**

# Hypersignal<sup>®</sup> Block Diagram

**A Powerful Graphical Design Tool for  
PC-based Development**

# Hyperception Products Provide Fast Solutions

No longer is it necessary to fight your development software and hardware, nor write your software tools from scratch. Hyperception provides tools to make your job easier. Thank you for taking the time to look over our algorithm development, signal processing, and acquisition products.

## Graphical Design Software Products

Product	Software Edition	Direct DSP Board Support	DSP-based Capability	PC-based Capability	Image Processing	Virtual Instrumentation	Run-time Application Capability	Automatic C Code Generation
RIDE	Enterprise	●	●	●	*	●	●	●
	Professional	●	●	●	*	●	●	
	Standard	●	●	●	*	●		
Block Diagram	Enterprise			●	*	●	●	●
	Professional			●	*	●	●	
	Standard			●	*	●		
OORVL	Enterprise		●		**			●
	N/A							
	Standard		●		**			
ImageDSP	Enterprise				●		●	●
	Professional				●		●	
	Standard				●			
VIDSP Studio	Enterprise					●	●	●
	Professional					●	●	
	Standard					●		

## DSP Parallel/Multi Processing Software Products

Product	Software Edition	Direct DSP Board Support	DSP-based Capability	PC-based Capability	Image Processing	Virtual Instrumentation	Run-time Application Capability	Automatic C Code Generation
Pegasus	All			●		●	●	●
	In addition to Block Diagram with C Code Generator, Pegasus also includes DSParcer, Pegasus Library, and 3L RTOS							
	Supports multiple DSP's on many different industry standard boards (including both VME and PC-based boards)							

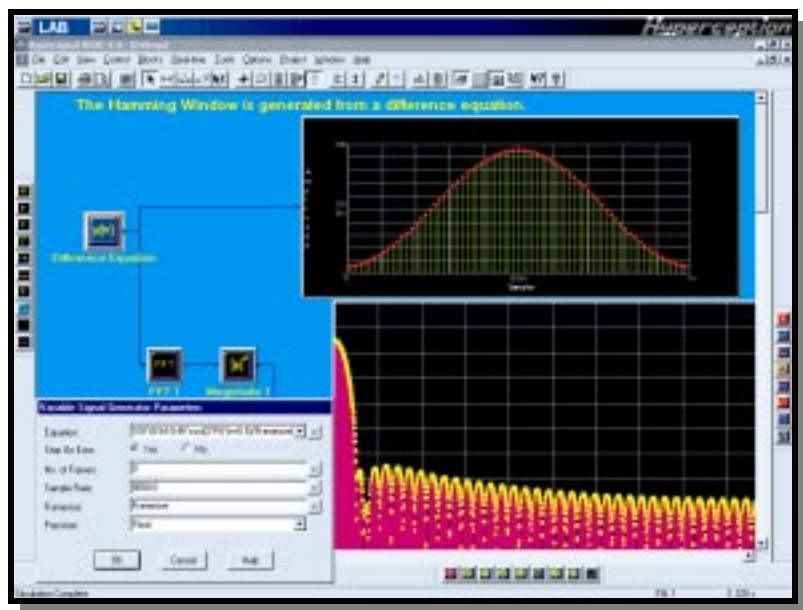
## Virtual instrument Software Products

Product	Software Edition	Function Generator	Digital Oscilloscope	Spectrum Analyzer	Dynamic Signal Analyzer	Speech Analyzer
VIDSP Suite	Professional	●	●	●	●	●
	Standard	●	●	●		
	Note – These products were designed using the Professional Edition of RIDE					

\* Image Processing is supported with the optional Image Processing Library

# Hypersignal® Block Diagram

## A Powerful Graphical Design Tool for DSP and Related Engineering Development



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

### 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 Code Generation
- Object-Oriented Graphical Software Design Environment simplifies project development
- Rapid Prototyping of DSP-based Products and Systems
- Telecom, Speech, Military, Medical, Auto-

## Overview

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 proven approach offers numerous distinct advantages over other design methods.

# Advanced Simulation/Modeling

## 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.*

### 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

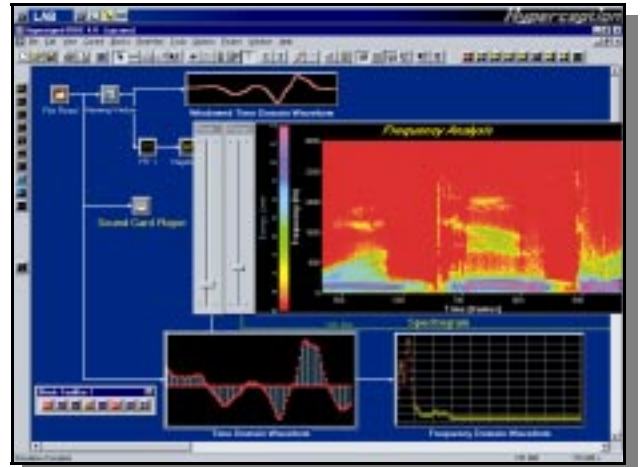
Block Diagram allows you to implement conditional constructs for program control, looping, or other decision-based logic. Any block function can be conditionally connected to any other block. This allows control over whether or not the block (or group of blocks) will execute.

### 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 sav-



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!

ings.

## 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.

## 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?

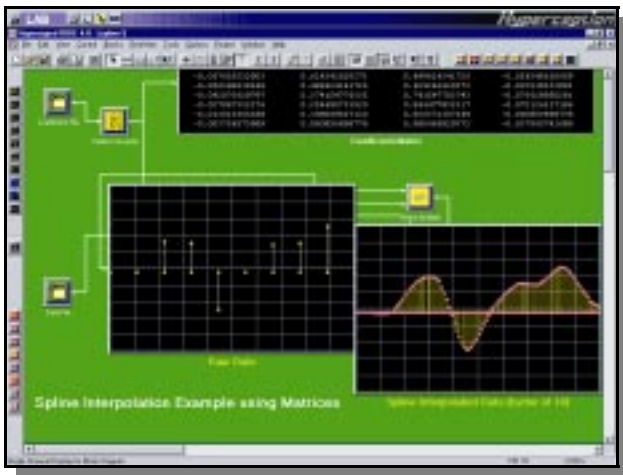
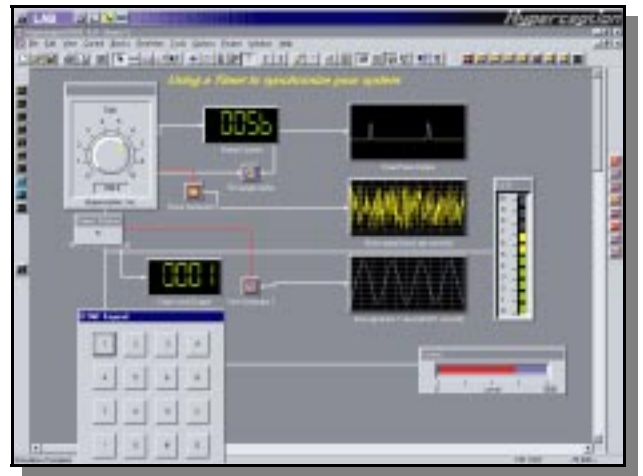
How does Hypersignal Block Diagram compare to other "similar" products? First, ours is a more efficient implementation, and

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 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





# 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.

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. Hyper-signal 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

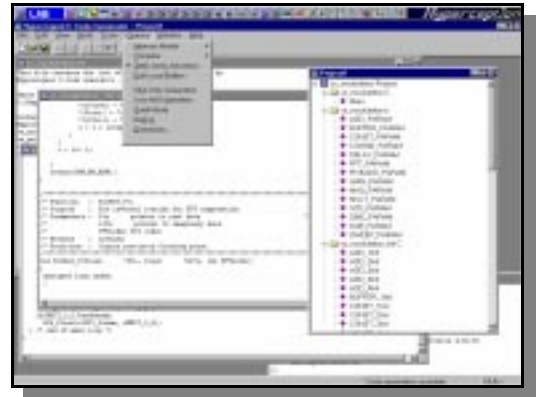


using C/C++ in minutes by using our Block Wizard tool and a standard Windows compiler such as Visual C/C++. Block Wizard makes adding your own functions very easy since it generates all of the files needed to build your new block function. You don't need to be a Windows programmer to take advantage of 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.

# ANSI C Source Code Generator (CCG)

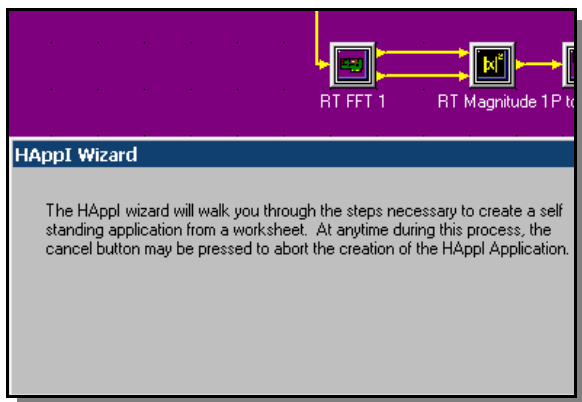
## Enterprise Editions

This can be an extremely useful tool to augment Hypersignal Software Products. The ANSI C Source Code Generator will automatically create ANSI C source code to implement your block diagram worksheet design. The resulting C source code may then be cross-compiled for a particular DSP, and executed in real-time on virtually any 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 other target platforms. The C Source Code Generator is included in all Enterprise



# Run-time Application Builder (HAppl)

## Professional and Enterprise Editions



Imagine being able to convert your Hypersignal designs into standalone executable Windows applications! That's the power that the Hyperception Application Builder (HAppl) will give you. After designing your project visually with one of the Hypersignal products, the Application Builder Wizard will quickly walk you through the steps needed to create a standalone Windows 98/95/NT application. The result is a professionally looking application (see the instruments in VIDSP Suite – designed with Hypersignal RIDE Professional Edition!) - designed in very little time! HAppl quickly provides low-cost solutions for many OEM applications, and

# Optional Libraries

## Additional Support for Specialized Applications

### Image Processing Library (IPL)

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 (ATL)

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.

### Advanced Speech Library (ASL)

The ASL provides you with a set of block functions which provide additional capabilities for those interested in speech processing, telecom, and related fields. Call for details.

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