

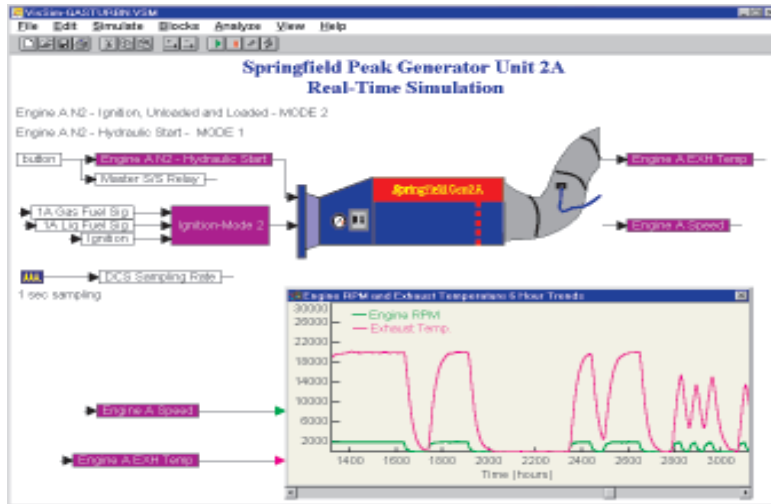
## VisSim/Real-TimePRO™

VERSION 3.0

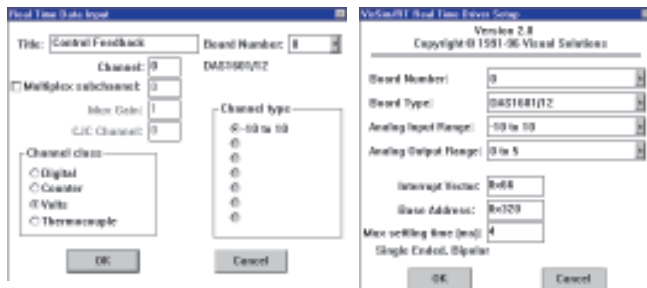
VisSim/Real-TimePRO provides the capability to couple a VisSim system model directly with a "real" process or controller. With VisSim/Real-TimePRO, hardware-in-the-loop (HIL) systems can be configured and executed by interfacing VisSim plant or controller models with real-world hardware, such as manufacturing plants, chemical processes, motors, pumps, and electric drives. The interface to real-world hardware is through computer I/O cards; high-speed motion control interface cards; or serial port connections to Programmable Logic Controllers (PLCs) or Distributed Control Systems (DCSs). And no code generation or programming is involved to configure an HIL system with VisSim/Real-TimePRO.

VisSim/Real-TimePRO has been used successfully in a wide variety of industries to:

- Develop and validate control strategies
- Perform off-line tuning
- Verify the feasibility of product/process transitions
- Train system operators (on the plant model, not actual plant)



Real-time simulation and data acquisition of a gas turbine power generator unit.



Real-time data input configuration and driver set-up dialog boxes simplify the set-up process.

### Highlights

- Supports I/O cards from Advantech, ComputerBoards, Data Translation, MetraByte, National Instruments, and Precision Micro Dynamics
- Real-time data acquisition and display
- Real-time hardware-in-the-loop control
- Real-time data logging with gating
- Closed-loop process control
- Cold junction compensation
- Pulse width modulation (PWM)
- Thermocouple linearization
- 1 kHz data sampling rate (no counter); 20 kHz data sampling rate (counter assisted)
- PID tuning
- Data I/O in ASCII, .M, .MAT, and .WAV file formats
- Counter-timer frequency I/O
- Real-time calculations for mathematical, statistical, and logical functions
- Quadrature encoding
- Connect up to 16 boards simultaneously
- Accommodates simultaneous use of different boards
- Supports up to 48 direct input channels, 48 output channels, and 48 digital I/O channels per board at up to 1000 Hz data rates
- Supports multiplexer add-ons to provide up to 112 channels per board
- Supports direct switching of 120V AC systems
- Configuration dialog boxes for specifying PC board types and A-D/D-A gain ranges
- I/O dialog boxes for specifying channel characteristics, including number, resolution, type, and voltage range
- Supports C code generation for rt-DataIn and rt-DataOut blocks

### Technical Specifications

- Up to 5000 Hz closed-loop data rate
- Up to 1792 analog input channels
- Up to 256 analog output channels\*
- Up to 384 digital input channels
- Up to 384 digital output channels
- Up to 48 frequency input channels
- Up to 48 frequency output channels
- Supports standard thermocouple types

\* Either volts or 4-20mA.

### Sample Applications

- Biomedical engineering
- Furnace control
- HVAC
- Model verification
- PLC commissioning
- Precision servo design
- Pulp and paper
- Real-time simulation
- System identification

### System Requirements

- Professional VisSim™ 2.0+
- 500 K RAM
- 500 K disk space
- 3½" floppy drive

Windows® 3.1, 95, NT  
Compatible



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# I/O Boards Supported by VisSim/Real-TimePRO 3.0

## *Advantech*

PCL-711  
PCL-711S  
PCL-718  
PCL-812  
PCL-812PG  
PCL-818  
PCL-818PG  
*Interface Board*  
PCLD-789

## *Analog Devices*

RTI 815

## *ComputerBoards*

### *Analog Input*

CIO-DAS08  
CIO-DAS08/AO  
CIO-DAS08/AOH  
CIO-DAS08/AOL  
CIO-DAS08/Jr  
CIO-DAS08PGA  
CIO-DAS08PGH  
CIO-DAS08PGL  
CIO-DAS16  
CIO-DAS16/Jr  
CIO-DAS16/330  
CIO-DAS16/330i  
CIO-DAS48<sup>1</sup>  
CIO-DAS48PGA  
CIO-DAS1601/12  
CIO-DAS1602/12  
CIO-DAS1602/16

### *Analog Output*

CIO-DAC02  
CIO-DAC08  
CIO-DAC08-I  
CIO-DAC16  
CIO-DAC16i  
CIO-DDDA06

## *ComputerBoards (continued)*

### *Digital Input & Output*

CIO-DIO24<sup>2</sup>  
CIO-DIO24DD  
CIO-DIO24H  
CIO-DIO48<sup>3</sup>  
CIO-DIO48DD  
CIO-DIO48H<sup>3</sup>  
CIO-DIO96<sup>4</sup>  
CIO-DIO192<sup>5</sup>  
CIO-PDIS08

### *Interface Boards to Digital I/O*

CIO-DUAL-AC5  
CIO-ERB08  
CIO-ERB24  
CIO-ERB48  
SSR-RACK08  
SSR-RACK24  
SSR-RACK48

### *PCMCIA (laptop) Analog & Digital I/O*

PCM-DAC02<sup>6</sup>  
PCM-DAC08<sup>6</sup>  
PCM-DAS16<sup>6</sup>  
PCM-DAS16/12<sup>6</sup>  
PCM-DAS16S/12<sup>6</sup>  
PCM-DAS16/16<sup>6</sup>

### *Counter Timer*

CIO-CTR05  
CIO-CTR05/H50  
CIO-CTR10<sup>7</sup>  
CIO-CTR10/H50<sup>8</sup>

## *Data Translations*

DTI-2811PGH  
DTI-2811PGL

## *MetraByte*

### *Analog Input*

DAS-08  
DAS-08/AO  
DAS-08/LT  
DAS-08/PGA  
DAS-16  
DAS-1400  
DAS-1600

### *Analog Output*

DAC-02  
DAC-16  
DDA-06

### *Digital Input & Output*

PDIS08  
PIO-24

## *National Instruments*

Lab-PC+  
PC-AO-2DC  
PC-DIO-24  
PC-DIO-96<sup>9</sup>

### *Digital Input & Output*

DAQCard-1200  
DAQCard-DIO-24  
DAQCard-AO-2DC

## *Precision Micro Dynamics*

MFIO-3A (3 axis quadrature encoder  
with 3 16-bit analog outputs)

1. Equivalent to three CIO-DAS16 on a single board.
2. Also supported in 24 input and 24 output modes.
3. Equivalent to two CIO-DIO24 on a single board.
4. Equivalent to four CIO-DIO24 on a single board.
5. Equivalent to eight CIO-DIO24 on a single board.
6. Supported by VisSim/Real-TimePRO on Windows 95 only.
7. Equivalent to two CIO-CTR05 on a single board.
8. Equivalent to two CIO-CTR05/H50 on a single board.
9. Equivalent to four PC-DIO-24 on a single board.



Windows® 3.1, 95, NT  
Compatible



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