VisSim/C-Code™ 7

Automatic C Code Generation Software

VisSim/C-Code automatically translates VisSim diagrams into highly optimized, ANSI C code that can be compiled and run on any platform that supports an ANSI C compiler.

Optimized code: Using a technique called "constant folding," the generated code is optimized for speed by eliminating multiplications-by-one and additions-by-zero, as well as other identity operations. In addition, the number of function calls and array references are minimized to increase code efficiency. The resulting executables run up to five times faster than their block diagram counterparts, which is particularly useful for applications with high sampling rates.

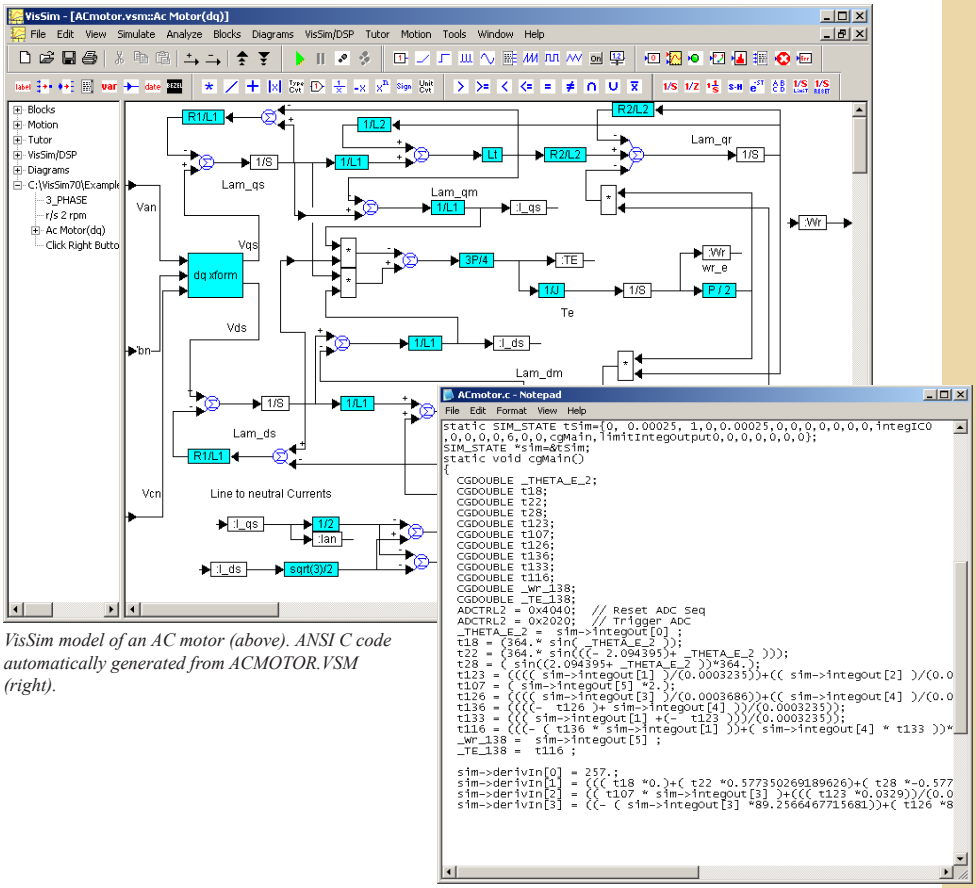
Readable code: VisSim/C-Code preserves variable names from the block diagrams to make it easier to identify signals in the generated code. In addition, comments can be inserted to indicate the hierarchical level of the diagram from which the code is generated. Finally, all C code is formatted, including line length control, to improve readability and maintainability.

Automatic DLL generation: VisSim/C-Code can automatically generate DLLs from any portion of a block diagram. For complex, multi-level diagrams, using DLLs rather than the corresponding blocks can significantly increase simulation speed and efficiency.

Simulation object generator: VisSim/C-Code allows incorporation of one or more simulation instances into the simulation.

Support Library Source Code

The source code for the Support Library is a separate product that can be purchased from Visual Solutions. Source code for the Support Library is required for unsupported platforms.



VisSim model of an AC motor (above). ANSI C code automatically generated from ACMOTOR.VSM (right).

Highlights

- Variable name retention
- Matrix and vector support
- Parameterized types for redefinition to target processor capabilities
- Maps most operators onto C code equivalents
- Supports Euler, Runge Kutta 2nd order, and Runge Kutta 4th order integration algorithms
- Include map files in generated code
- Automatic menu insertion
- Enabled subsystem support
- Efficient fixed-point support
- Line length control
- Multiple instantiation of a simObject
- Automatically creates VisSim-callable DLLs
  - — DLLs can clock faster or slower than simulation clock (time step)
- Targets code for embedded controllers and DSP chips
- Smaller memory footprint
- Executables run under MS/DOS, Windows, or proprietary system
- Browse facility
  - — Incorporate user-written C code
  - — Edit existing code
  - — Modify header files
- 32-bit Support Library allows compiled simulations to be run under MS/DOS, Windows 9x/NT/2000/XP
- Support Library source code allows compiled control designs to be targeted for any system (see Support Library Source Code)

Technical Specifications

Integration methods	Euler, RK2, RK4
Generated code	ANSI C
Support Library code*	Object code** or source
Blocks not supported	DDE and Optimization blocks, display, histogram, light, meter, plot, stripChart
Graphical output	ASCII text

* Support Library source code is a separate product.

** Object code available for Win 9x and Win NT.

System Requirements

- Professional VisSim 7
- Microsoft Visual C compiler 5.0+
- 8MB RAM
- 1MB disk space

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