

Programming Environments

John Foderaro

In this issue we feature a description of Delphi Common Lisp, an enhanced version of Kyoto Common Lisp.

Company: Delphi S.p.A.
Via della Vetraia, 11
I-55049 Viareggio, Italy

tel: + 39 (584) 395225
fax: + 39 (584) 395366
tlx: 501542 DELPHI I

Product name: Delphi Common Lisp

Version of product described: All versions.

This version available when: This year. Contact Delphi for more information.

Hardware available on: Sun 3, Sun 4, Sun 386i, general 386-based machines running Unix system V. Available on a wide variety of hardware and operating systems in the near future.

Delphi Common Lisp is a full implementation of Common Lisp that runs on a range of general-purpose computers. DCL provides several major facilities on top of the Common Lisp standard to provide a more complete and powerful programming language including

- Common Lisp Object System, in complete accordance with the ANSI X3J13 subcommittee proposal.
- CLX, the emerging standard binding between Common Lisp and the X Window system "client" functionality. It's implemented entirely in Lisp (doesn't go through XLib) and provides direct access from Lisp to all X Window client functions.
- "Multithread" facility to create and control concurrent threads of program execution. Useful for U.I. design and other applications where interrupts can come from a variety of sources as well as parallel processing research.
- High productivity facilities like ZetaLisp LOOP macro, Symbolics-style DEFSYSTEM, autoloader facility, EMACS editor interface

Influence: The Common Lisp component of DCL is based on Kyoto Common Lisp, meaning that it's extremely portable and, now, performs quite well. The CLX implementation was based on the implementation done by Texas Instruments but has been tuned to achieve many times better performance.

The multithread facility and the CLOS implementation originated at Delphi. The multithread facility is based on the functional model of computation described with continuation semantics. Some ideas for the implementation of Delphi's CLOS come from the ObjVlisp model of Pierre Cointe presented in "Metaclasses are First Class: the ObjVlisp Model", OOPSLA '87.

Primarily residential or file based: file based.

Components Of the Programming Environment:

Editor: Typically an Emacs-like editor such as GnuEmacs is used with DCL. An editor interface is provided which makes it convenient to switch back and forth between editor and Lisp listener quickly. This speeds the edit-compile-debug loop.

Debugger: The KCL debugger is included in DCL. The debugger is always available to intercept errors automatically. Commands for manipulating the control stack, displaying state information about variable values, special bindings, backtraces, searching for stack frames are all available. Program execution can continue from the debugger after the user has taken the desired action.

Large program management: A Symbolics-style DEFSYSTEM facility is included.

Inspector: The KCL inspector is included in DCL. It can be invoked from top-level or inside a debugger loop to interactively examine and modify data structures.

Documentation: Complete printed documentation on all components of DCL is available as well as on-line documentation for the functions and variables of DCL.

Performance analysis: See the March 1988 issue of A.I. Expert magazine for a review of the performance of KCL. Since DCL is based on KCL, the results reported there give a good estimate of the performance of DCL, which is extremely competitive with other Lisp implementations.

COMPUTER GENERATED MOVIE TITLES

From Abbie Herrick, New York

THE NIGHT OF THE BELLY-UP SUB-SYSTEM

THE AGRESSIVE LION FOOD THAT LIVED UNDER FORT APACHE

I MARRIED A WILD DUCK

THE NIGHT OF THE BACK-LEVEL CONVERGENCE

THE INCREDIBLE LION FOOD THAT RIPPED OFF FORT APACHE

I SPIT ON YOUR SUB-SYSTEM

THE FAILURE OF THE FROZEN CONVERGENCE

THE CANDY-STRIPED TUBE-JOCKEY THAT CAME FROM FORT APACHE

I WALKED WITH A SUB-SYSTEM

THE INVASION OF THE FLOOR SYSTEM IRONMONGER

THE FROZEN CONVERGENCE THAT RIPPED OFF GALACTIC HQ