Paradyn Parallel Performance Tools

Documentation Overview

Release 5.0
June 2006

Paradyn Project
Computer Sciences Department
University of Wisconsin
Madison, WI 53706-1685
paradyn@cs.wisc.edu

MANUALS

o *Installation Guide*

Describes how to obtain Paradyn and install it, while detailing the minimum operating system and system software version numbers needed for compatibility with this release of Paradyn.

o *Tutorial*

Provides a step-by-step example of the use of Paradyn. It walks you through the main features of starting a program with Paradyn, displaying performance visualizations, and using the Performance Consultant. The tutorial is intended to show many of the common and most useful features, but is not a complete description of Paradyn's features.

o *User's Guide*

This manual contains a complete description of how to use Paradyn and its comprehensive state-of-the-art functionality.

o *DyninstAPI Programmer's Guide*

This manual contains a complete description of the DyninstAPI (a standardized interface to Paradyn's dynamic instrumentation) and how to use it.

o *Dyner User's Guide*

Documentation of the *dyner* Tcl-based command-line interface to DyninstAPI.

o *VisiLib Programmer's Guide*

Visilib is the standard API interface for external processes that want to collect performance data from Paradyn. Paradyn performance visualizations (Time Histogram, Bar Chart, Table and 3D Terrain) execute as separate processes, using VisiLib as their interface to Paradyn.

o *MDL Programmer's Guide*

MDL programming hints and examples for those wishing to write their own metrics.

o *Developer's Guide*

This is intended for those who wish to understand the Paradyn source code—whether to just to browse it or to actually make changes with the intent of rebuilding Paradyn from scratch.

TECHNICAL PAPERS

Following is a bibliography of currently available papers on the technology contained in or related to Paradyn. These papers can be obtained from the Paradyn Project Web home page.

1. "The Paradyn Parallel Performance Measurement Tools", Barton P. Miller, Mark D. Callaghan, Jonathan M. Cargille, Jeffrey K. Hollingsworth, R. Bruce Irvin, Karen L. Karavanic, Krishna Kunchithapadam, and Tia Newhall. *IEEE Computer* **28**, 11, (November 1995). Special issue on Parallel and Distributed Processing Tools.
2. "An Adaptive Cost Model for Parallel Program Instrumentation" Jeffrey K. Hollingsworth and Barton P. Miller. *EuroPar'96 Conference*, Lyon, France, August 1996. Appears as *LNCS 1123*, Vol.I, pp. 88-97, Springer-Verlag.
3. "Dynamic Program Instrumentation for Scalable Performance Tools", Jeffrey K. Hollingsworth, Barton P. Miller, and Jon Cargille. *Scalable High Performance Computing Conf.*, Knoxville, May 1994.
4. "Dynamic Control of Performance Monitoring on Large Scale Parallel Systems", Jeffrey K. Hollingsworth and Barton P. Miller. *International Conference on Supercomputing*, Tokyo, July 19-23, 1993.
5. "The Paradyn Parallel Performance Tools and PVM", Barton P. Miller, Jeffrey K. Hollingsworth, and Mark D. Callaghan. **Environments and Tools for Parallel Scientific Computing**, J. J. Dongarra and B. Tourancheau, eds., SIAM Press, 1994.
6. "Mapping Performance Data for High-Level and Data Views of Parallel Program Performance", R. Bruce Irvin and Barton P. Miller. *International Conf. on Supercomputing*, Philadelphia, May 1996.
7. "A Performance Tool for High-Level Parallel Programming Languages", R. Bruce Irvin and Barton P. Miller. Pr**ogramming Environments for Massively Parallel Distributed Systems**, K. M. Decker and R. M. Rehmann editors, Birkhauser Verlag, pp. 299-314, 1994.
8. "Optimizing Array Distributions in Data-Parallel Programs", Krishna Kunchithapadam and Barton P. Miller. *7th Workshop on Languages and Compilers for Parallel Computing*, Ithaca, NY. August 1994.
9. "Integrating a Debugger and Performance Tool for Steering", Krishna Kunchithapadam and Barton P. Miller. *Workshop on Debugging and Performance Tuning for Parallel Computing Systems*. Cape Cod, Massachusetts, USA, October 1994.
10. "What to Draw? When to Draw? An Essay on Parallel Program Visualization", Barton P. Miller. *Journal of Parallel and Distributed Computing* **18**, 2 (June 1993).
11. "Binary Wrapping: A Technique for Instrumenting Object Code", Jon Cargille and Barton P. Miller. *SIGPLAN Notices* **27**, 6 (June 1992).
12. "Finding Bottlenecks in Large-scale Parallel Programs", Jeffrey K. Hollingsworth, August 1994. University of Wisconsin-Madison Computer Sciences Department Tech. Report #1243 (Ph.D. Thesis).
13. "Performance Measurement Tools for High-Level Parallel Programming Languages", R. Bruce Irvin, October 1995. University of Wisconsin-Madison Computer Science Department Technical Report #1292 (Ph.D. Thesis).
14. "MDL: A Language and Compiler for Dynamic Program Instrumentation", Jeffrey K. Hollingsworth, Barton P. Miller, Marcelo J. R. Gonçalves, Oscar Naìm, Zhichen Xu and Ling Zheng. *PACT'97*, San Francisco, California, USA. November, 1997.
15. "A Callgraph-based Search Strategy for Automated Performance Diagnosis," Harold W. Cain, Barton P. Miller and Brian J. N. Wylie. Submitted for publication, February 2000.

CONTACTING THE PARADYN DEVELOPERS

There are various ways to get in touch with the Paradyn developers. We are happy to try to answer questions and appreciate feedback.

e-mail: `paradyn@cs.wisc.edu`

This is our project e-mail address. Use this address for technical questions or requests.

Web: `http://www.cs.wisc.edu/~paradyn`

This is our home page. From this page, you can find out how to get a binary or source version of Paradyn. You can also get updates and news on the current release of Paradyn.

FTP: `ftp://ftp.cs.wisc.edu/pub/paradyn/`

This is our ftp site. In the "paradyn" directory, you will find subdirectories containing the binary and source versions of the Paradyn release. Make sure to look at the README files!

FAX: +1 (608) 262-9777

Postal:

```
Paradyn Project
c/o Prof. Barton P. Miller
Computer Sciences Department
University of Wisconsin
1210 W. Dayton Street
Madison, WI  53706-1685
U.S.A.
```

n