

Contents

GENERAL SESSIONS

Cray Research Software Report <i>Irene M. Qualters</i>	3
CRI Service Report <i>Mick Dungworth</i>	6

PARALLEL SESSIONS

Applications and Algorithms

FCRASH, Optimization of an Explicit FEA Based Crash Simulation Code For The Cray C916/16-512 <i>Daniel F. Anderson, Alexander Akkerman, and Dave Strenski</i>	11
The Evolution of Molecular Dynamics Codes From PVP to MPP <i>Barry C. Bolding</i>	16
Contribution of SSC Supercomputing to Korean Science and Technology <i>Joon-Whoon Choi, Don-Woo Cho, Si-Heung Lee, Hee-II Lee, Joong-Kwon Kim, Chung-II Park, and Year-Back Yoo</i>	19
Sorting on the Cray T3D <i>Brandon Dixon and John Swallow</i>	24
A Spectral Finite Element Model for Shallow Water Equations: Implementation Experiences on the Cray T3D <i>Giovanni Erbacher, Valeria Simoncini, Giorgio Bertero, Roberto Ansaloni, and Antonio Navarra</i>	35
Experiences Running LS-DYNA3D in Production on the Cray T3D <i>John W. Gregory</i>	43
Sheet Metal Forming Simulation of Automotive Body Panels <i>Michael Y. Sheh and Longwu Wu</i>	47
Chemical Plant Simulation on Cray Research Supercomputers: An Industrial Success Story <i>Stephen E. Zitney</i>	54

Graphics

Binary-Swap Volumetric Rendering on the T3D <i>Chuck Hansen, Michael Krogh, James Painter, Guillaume Colin de Verdière, and Roy Troutman</i>	61
Medical Diagnosis using the Cray T3D <i>Greg Johnson and Jon Genetti</i>	70
AVS Optimization for Cray Y-MP Vector Processing <i>Karen L. Woys and Mitchell G. Roth</i>	78

MPP

CRAY T3D Experiments with I/O <i>R. Kent Koeninger</i>	93
---	----

Scalable Supercomputing Comparing MPPs and SuperClusters™ <i>R. Kent Koeninger</i>	95
Parallel Implementation of a 3-D Subband Decomposition Algorithm for Digital Image Sequence Compression on the Cray T3D <i>H. Nicolas, M. Schutz, and F. Jordan</i>	97
Modeling Serverized UNICOS on the T3E Architecture <i>Bruce Schneider</i>	103
Mass Storage Systems	
CRI RAID	
<i>Robert A. Albers</i>	107
Improving Recoverability by Utilizing DMF <i>Nicholas P. Cardo</i>	116
DMF, MLS and an NFS-Based Station MSP <i>Margaret S. Douglas and Michael L. Green</i>	120
DA-301 Experiences <i>Terence L. Jones</i>	124
Using Cray REELibrarian in Production Environment <i>Beata Sarnowski</i>	127
SDSC Enhancements to NSL UniTree <i>Wayne Schroeder</i>	132
Networking	
High Speed Supercomputer Network in Korea <i>Shin-Young Lim, Jung-Gun Kim, Chan-Sung Park, Ok-Hwan Byeon, and Yeo-Back Yoo</i>	139
Scalable ATM Encryption <i>Lyndon G. Pierson</i>	143
Operating Systems	
Cluster Scheduling With NQX <i>Chris Brady, and Dennis Colarelli</i>	149
UNICOS/mk: A Distributed Operating System with Single System Image <i>Gabriel Broner</i>	153
Batch Scheduling: A Fresh Approach <i>Nicholas P. Cardo</i>	157
Status on the Serverization of UNICOS - (UNICOS/mk Status) <i>Jim Harrell</i>	165
UNICOS System Tuning Improvements <i>Donald Lee</i>	167
Scaling Solaris for Enterprise Computing <i>Drew McCrocklin</i>	172
What Every Administrator Should Know Before Trying To Set Up a Share Hierarchy in the UDB <i>Kathlean C. Zinnel</i>	182

Operations

Operation of the Cray T3D as a National Facility <i>Michael W. Brown</i>	189
T3D Experiences at ECMWF <i>Graham Holt</i>	211
CRI Question and Answer Panel <i>Julie Larson, Tom Boyle, Steve Johnson, Dave Judd, Janet Lebens, Paul Rutherford, and Dave Wallace</i>	216
The New Cray Service Program: an Advance Look <i>Richard Lough</i>	222
Automatic Operations on Y-MP and T3D Systems <i>Denis Lubin, Pascal Richard, and Elizabeth Charon</i>	226
Cray Operations' 16 Week Vision <i>Brian Schneider</i>	231
Tapes and Robots for the CS6400 SuperServer <i>Phil Stringer</i>	235
Many Users vs. CS6400—CS6400 Operating Experience in the Large Environment at Chiba University— <i>Kazuyuki Yamashita and Shigeki Miyaji</i>	238

Performance Evaluation

How Much Bigger, Better and Faster? <i>Dave Abbott, Mike Timmerman, and Doug Wiedder</i>	243
Performance Optimization of Parallel Programs - Tracing, Zooming, Understanding - <i>A. Arnold, U. Detert, and W.E. Nagel</i>	252
Simulating Quarks and Gluons on MIMD Parallel Computers <i>T. DeGrand</i>	259
Terrain Correction of Synthetic Aperture Radar Imagery Using the Cray T3D <i>Thomas Logan</i>	268
Building Performance into the Development Process <i>Bruce Schneider</i>	275
UNICOS Accounting Futures and Generic Report Generation <i>Charles R. Smith</i>	277

Security

Security Futures <i>Paul Falde</i>	285
---	-----

Software Tools

The CraySoft CF90 Programming Environment: A User's Perspective <i>W. Robert Boland</i>	289
AC for the T3D <i>William W. Carlson and Jesse M. Draper</i>	291
TOP2 297 Tool Suite for Partial Parallelization <i>Ulrich Detert and Michael Gerndt</i>	297

Shared Memory Access (SHMEM) Routines <i>Karl Feind</i>	303
The Cray Research CRAFT-90 Programming Model <i>Tom MacDonald</i>	309

User Services

Support Functions Influencing the Experience of T3D Users at ARSC <i>Mike Ess</i>	319
Options for Providing Help Desk Service <i>Phil Hernick</i>	323
Diverse Approaches to Diverse Needs <i>Donna DuBose-Lincke</i>	324
Development of a Performance Database Web Server Tailored to User Services Needs <i>Richard Marciano, David Ence, and Bahram Nassersharif</i>	328
Locally Developed Utilities Simplify Cray User Interface <i>Donald Moore</i>	332
Consultant's Workbench and the WWW: New Productivity Tools at SDSC <i>Shawn Strande</i>	342

JOINT SESSIONS

Software/Security Tools

Distributed User Support on Exxon's Cray Supercomputer <i>Bonnie L. Hall</i>	349
---	-----

TUTORIAL

UNICOS under UNICOS, a Short Overview <i>Charles R. Smith</i>	357
--	-----

BIRDS-OF-A-FEATHER

Implementation Details: The Parallel Finite Element Method <i>David O'Neal and Raghurama Reddy</i>	361
---	-----

ATTENDEE LIST	377
----------------------------	-----

AUTHOR INDEX

- Abbott, Dave, 243
Akkerman, Alexander, 11
Albers, Robert A., 107
Anderson, Daniel F., 11
Ansaloni, Roberto, 35
Arnold, A., 252
Bertero, Giorgio, 35
Boland, W. Robert, 289
Bolding, Barry C., 16
Boyle, Tom, 216
Brady, Chris, 149
Broner, Gabriel, 153
Brown, Michael W., 189
Byeon, Ok-Hwan, 139
Cardo, Nicholas P., 116, 157
Carlson, William W., 291
Charon, Elizabeth, 226
Cho, Don-Woo, 16
Choi, Joon-Whoon, 16
Colarelli, Dennis, 149
de Verdière, Guillaume Colin, 61
DeGrand, T., 259
Detert, Ulrich, 252, 297
Dixon, Brandon, 24
Douglas, Margaret S., 120
Draper, Jesse M., 291
DuBose-Lincke, Donna, 324
Dungworth, Mick, 6
Ence, David, 328
Erbacci, Giovanni, 35
Ess, Mike, 319
Falde, Paul, 285
Feind, Karl, 303
Genetti, Jon, 70
Gerndt, Michael, 297
Green, Michael L., 120
Gregory, John W., 43
Hall, Bonnie L., 349
Hansen, Chuck, 61
Harrell, Jim, 165
Hernick, Phil, 323
Holt, Graham, 211
Johnson, Greg, 70
Johnson, Steve, 216
Jones, Terence L., 124
Jordan, F. , 97
Judd, Dave, 216
Kim, Joong-Kwon, 16
Kim, Jung-Gun, 139
Koeninger, R. Kent, 93, 95
Krogh, Michael, 61
Larson, Julie, 216
Lebens, Janet, 216
Lee, Si-Heung, 16
Lee, Hee-II, 16
Lee, Donald, 167
Lim, Shin-Young, 139
Logan, Thomas, 268
Lough, Richard, 222
Lubin, Denis, 226
MacDonald, Tom, 309
Marciano, Richard, 328
McCrocklin, Drew, 172
Miyaji, Shigeki, 238
Moore, Donald, 332
Nagel, W.E., 252
Nassersharif, Bahram, 328
Navarra, Antonio, 35
Nicolas, H., 97
O'Neal, David, 361
Painter, James, 61
Park, Chung-II, 16
Park, Chan-Sung, 139
Pierson, Lyndon G., 143
Qualters, Irene M., 3
Reddy, Raghurama, 361
Richard, Pascal, 226
Roth, Mitchell G., 78
Rutherford, Paul, 216
Sarnowski, Beata, 127
Schneider, Brian, 231
Schneider, Bruce, 103, 275
Schroeder, Wayne, 132
Schutz, M. , 97
Sheh, Michael Y., 47
Simoncini, Valeria, 35
Smith, Charles R., 277, 357
Strande, Shawn, 342
Strenski, Dave, 11
Stringer, Phil, 235
Swallow, John, 24
Timmerman, Mike, 243
Troutman, Roy, 61
Wallace, Dave, 216
Wiedder, Doug, 243
Woys, Karen L., 78
Wu, Longwu, 47
Yamashita, Kazuyuki, 238
Yoo, Year-Back, 19
Yoo, Yeo-Back, 139
Zinnel, Kathleen C., 182
Zitney, Stephen E., 54