Sun Grid Engine at Cadence

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Overview

- About Cadence
- Grid Software at Cadence
- SGE at Cadence
- Wish List
- Future Plans
- Acknowledgements

About Cadence

- Applications
  - Electronic Design Automation (EDA)
    - Target markets: Manufacturing, Telco, Education, and Government
- Business Objective
  - Market leader for EDA solutions that speed Advanced Integrated Circuits into volume production
- Industry Ranking & Revenues
  - 1.5B FY 2006
  - Top three (Cadence, Synopsys, Mentor G.,)
    - 75% of total EDA s/w sales worldwide

Grid Software at Cadence

- In 2005, due to growth via M&A
  - LSF 60%, SGE 20%, Condor 20%
- Since 2005 gradual transition to LSF only
  - 2007: IT supports only LSF
- SGE is still used by some small teams
- Cadence plans to make their R&D products grid ready

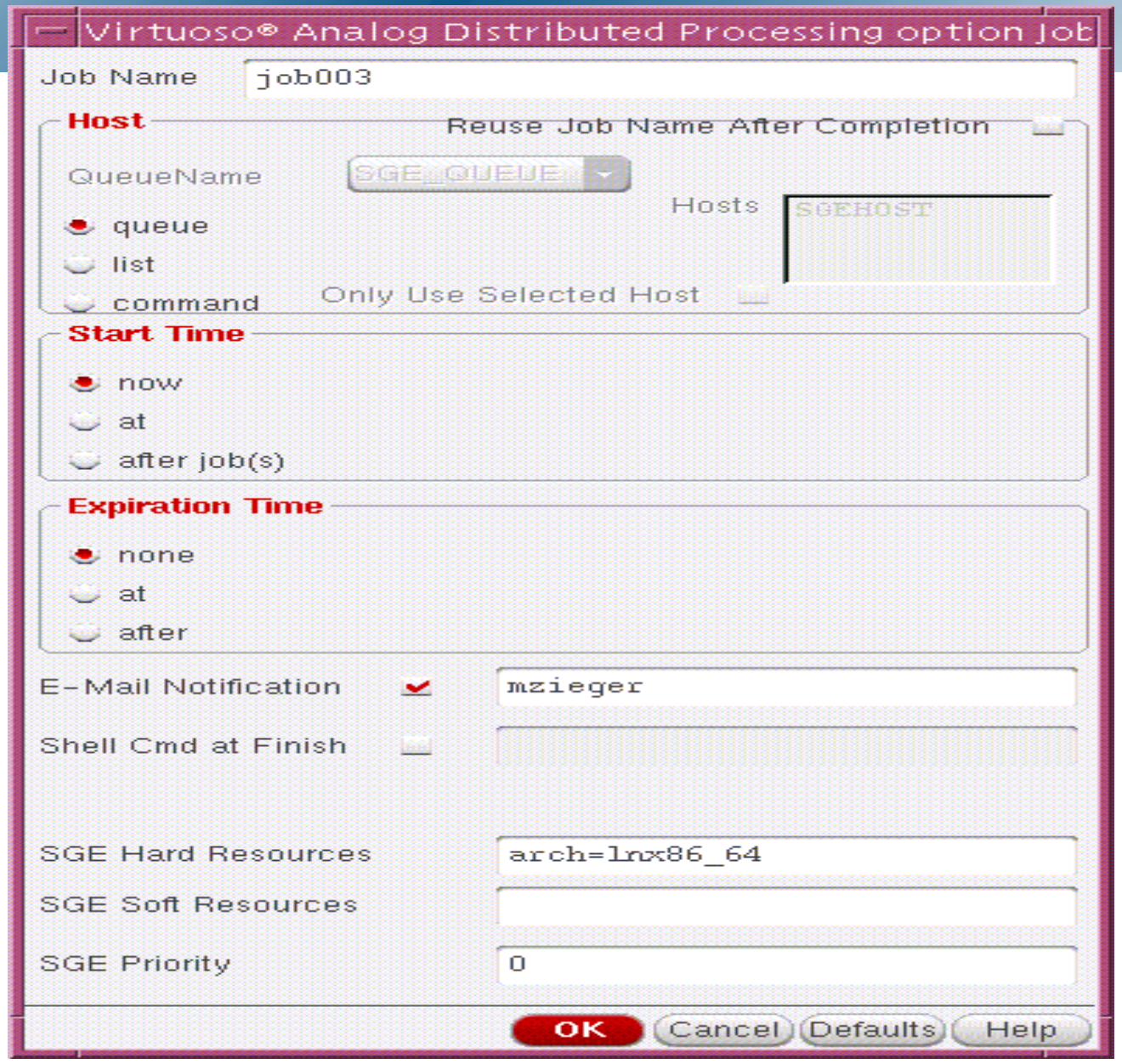
SGE at Cadence

- Compute farms
  - Munich, Germany
    - SGE 5.3u3 since 2003.
    - < 100 Servers
    - Spontaneous adoption
      - Sun sales not directly involved
  - San Jose, CA
    - Several SGE 5.3 & 6.0 small farms
  - Tempe, AZ
    - SGE 5.3 (plans to upgrade to SGE 6.1 next month)
    - < 100 Servers

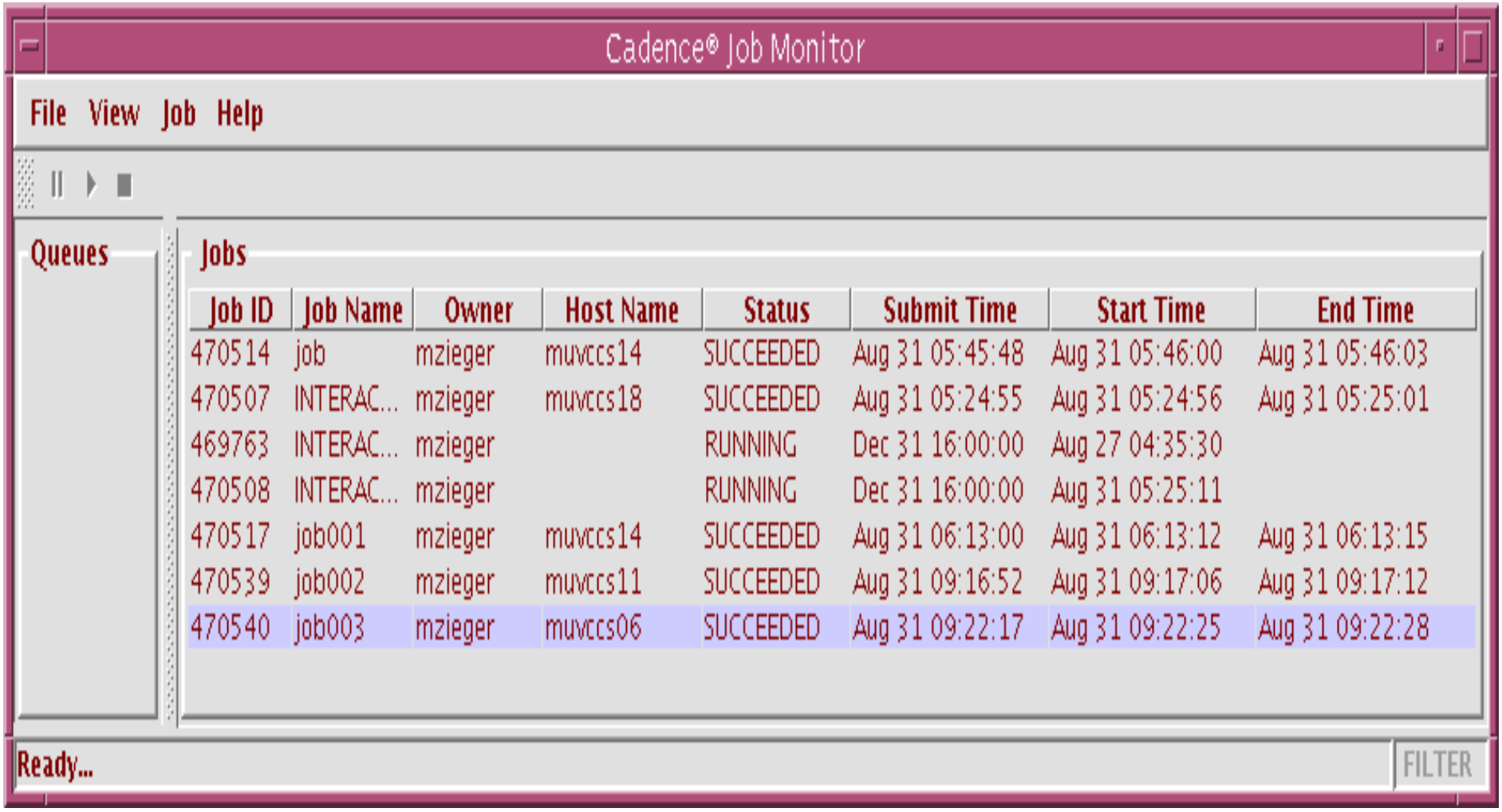
SGE at Cadence

- IC 6.1.1: SGE and LSF integrated in the GUI
- Neocircuit: SGE and LSF integrated in TCL GUI & wrappers
  - a DRM is really the key: runs thousands of simulations distributed by the SGE or LSF.

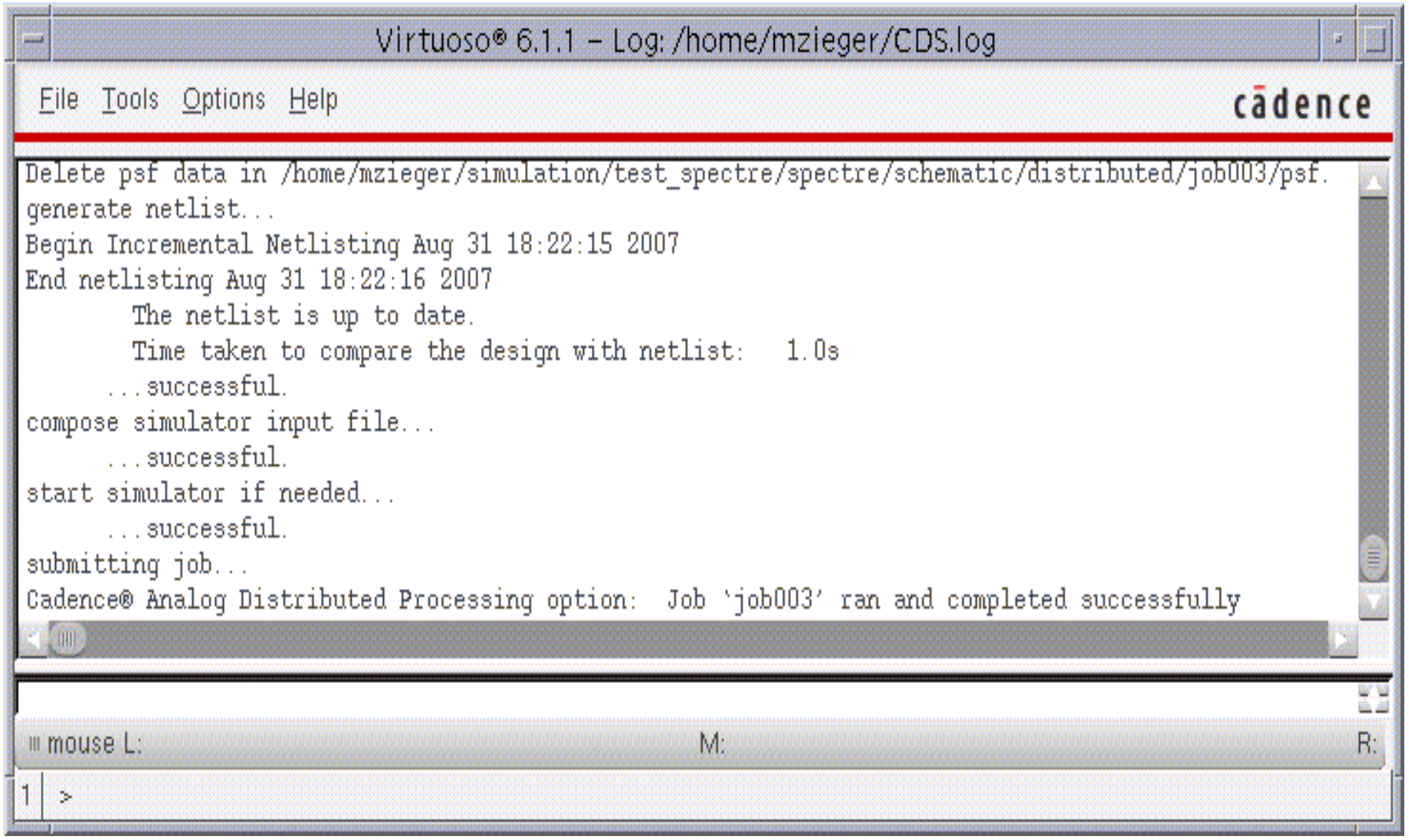
SGE at Cadence



SGE at Cadence



SGE at Cadence



SGE at Cadence

Diagnostics

Summary

Points	57	Points/Hour	269.509
Mean Time/Point	0:01:22	Total Errors	149
Total Nodes	51	Elapsed Time	0:12:41

Simulations

Name	Avg(s)	Curr #	Errors
TotArea	4.39	2	0
AC	6.8	12	0
AC_OpRegionSim	91.58m	1	0
CMRR	7.37	6	0
GSRR	10.44	3	0
ICMR	9.34	4	0
NOISE	7.44	2	0
OUTSWING	11.28	6	0
PSRR	10.33	3	0
SLEW	23.54	7	0
neocalc	55.49m	3	149

Machines

Name	Jobs
pitl007	1
pitl016	4
pitl008	1
pitl010	4
pitl011	2
pitl012	4
pitl053	2
pitl071	3
pitl055	2
pitl062	2
pitl052	2
pitl061	2
pitl019	4
pitl004	4
pitl005	4
pitl015	3

Cadence IT feedback

- Sun did not promote SGE to Cadence
  - director level site visit planned
- Miscommunication
  - Cadence existing support contract covers SGE downloads
    - Not true
- SGE courses not conveniently offered

Cadence engineering groups feedback

- Munich farm
  - Likes feature not available in LSF: jobs started with the correct UNIX group ID
  - productivity grew 30%-50%
  - Happy with SGE
- San Jose farm(s)
  - Why SGE? Free, easy to install, easy to deploy, easy to use, robust, stable, worked out of the box
  - Low maintenance, simplified operations
  - SGE more than doubled the productivity (they used “rsh” before SGE)
  - Most changed to LSF after Cadence signed a new contract with Platform

Cadence engineering groups feedback (cont'd)

- Tempe, AZ farm
  - cost effective (free), worked quickly, really robust, simple installation
  - looking forward to installing SGE 6.1

Wish List

- Small engineering groups are happy with SGE
- Munich farm
  - features missing: the ability to submit a UNIX command
  - never quite got distributed make to work
- San Jose farm
  - had trouble using several queues with SGE
- Improve “Tickets” documentation
- LSF user friendly :-)

Future Plans

- < 10,000 cpu-cores within Cadence
- SGE on the verge of being replaced
  - Munich farm: Happy with SGE, but similar groups have switched to LSF
  - San Jose farm: switched to LSF already
  - Tempe, AZ farm: staying with SGE for the foreseeable future

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