INSTITUT NATIONAL
DE RECHERCHE
EN INFORMATIQUE
ET EN AUTOMATIQUE

*INRIA*

Centre de Recherche Grenoble - Rhône-Alpes

# CADP

## Construction and Analysis of Distributed Processes
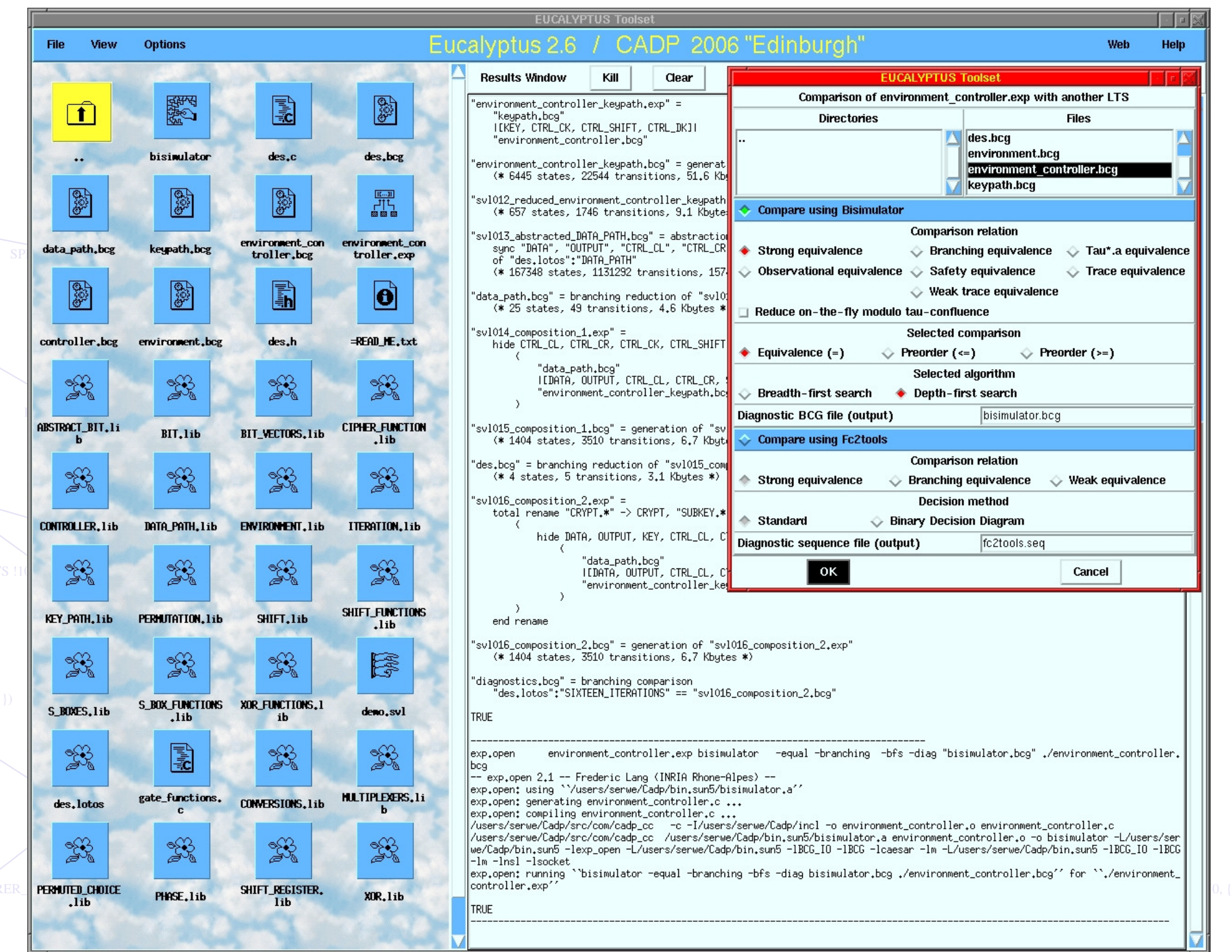
### http://www.inrialpes.fr/vasy/cadp

## Formal methods

– process algebra (LOTOS)
– networks of communicating automata

## Simulation and rapid prototyping

– code generation (C)
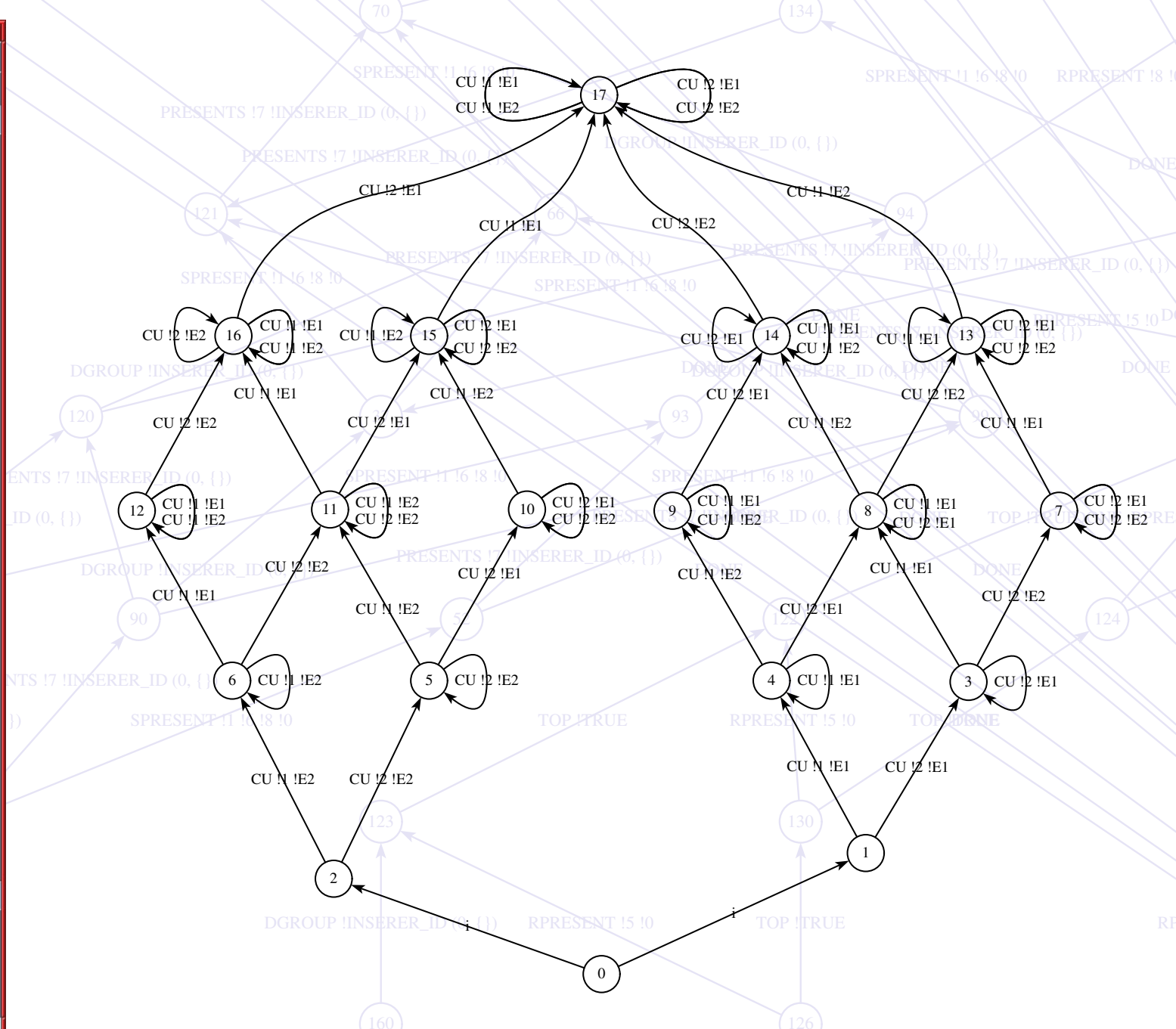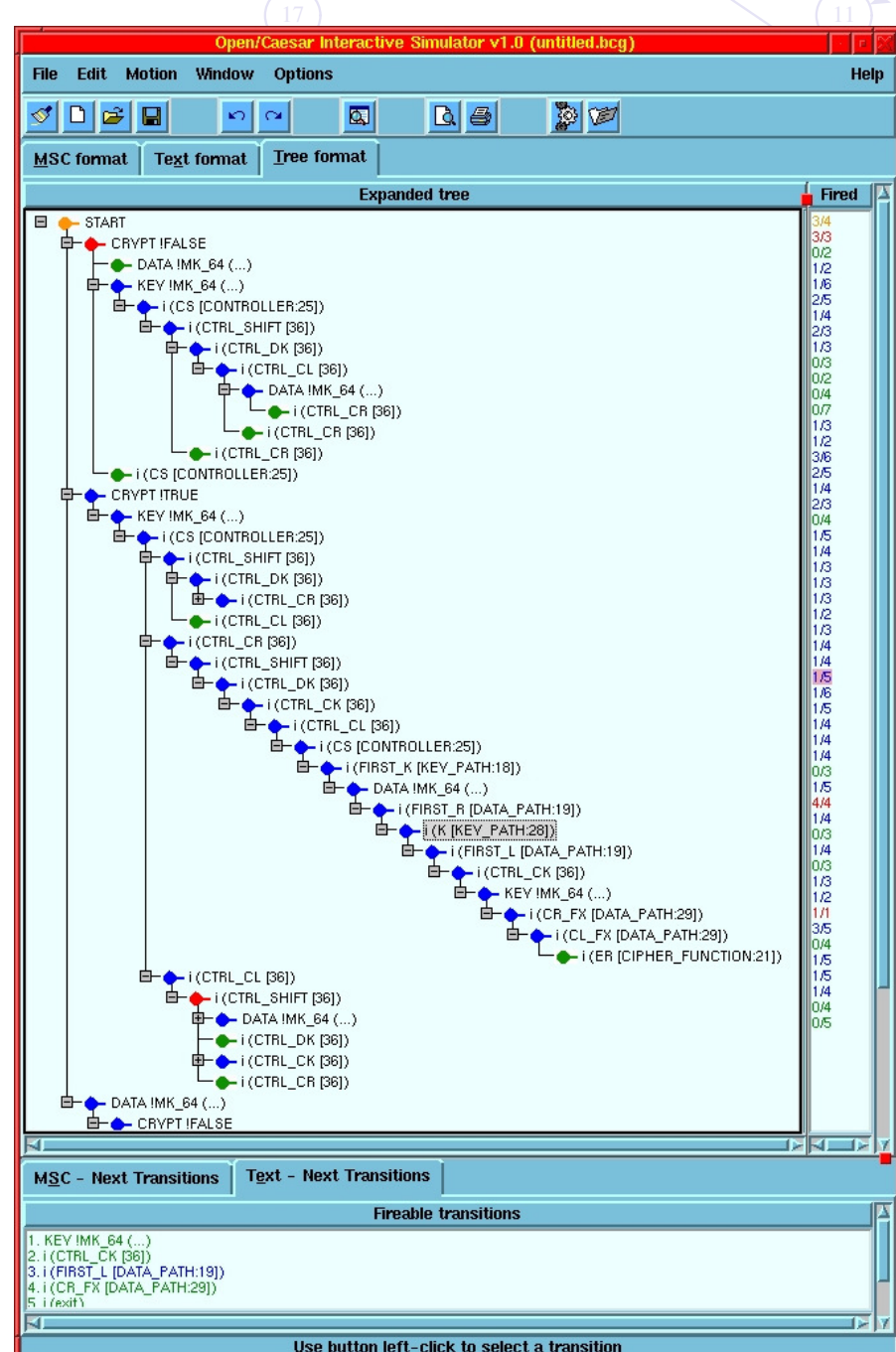– step-by-step execution
– random execution

## Explicit-state verification…

– model checking (μ-calculus)
– equivalence checking (bisimulations)
– visual checking

## …using different techniques:

– exhaustive
– partial
– on the fly
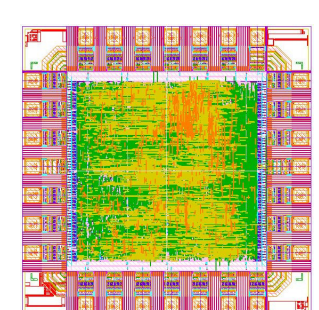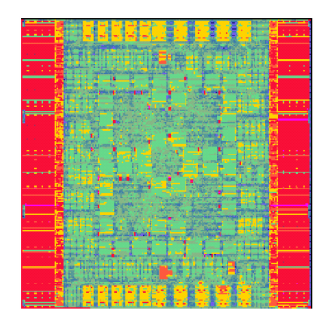– compositional
– distributed (clusters, grids)

## Performance evaluation

– Markovian minimization
– transient & steady state analysis

## Test case generation

## Some figures about CADP 2006

– 42 tools
– 17 software libraries
– 4 computing platforms : Sun/Solaris, PC/Linux, PC/Windows, MacOS
– International dissemination :
  • license agreement signed with 372 organizations
  • licenses granted for 822 machines in 2006
  • 94 case-studies using CADP http://www.inrialpes.fr/vasy/cadp/case-studies
  • 29 research tools connected to CADP http://www.inrialpes.fr/vasy/cadp/software
  • 28 university lectures based on CADP

**Publications**

Hubert Garavel, Radu Mateescu, Frédéric Lang, and Wendelin Serwe. *CADP 2006: A Toolbox for the Construction and Analysis of Distributed Processes*. In Proceedings of the 19th International Conference on Computer Aided Verification CAV 2007 (Berlin, Germany). Lecture Notes in Computer Science, vol. 4590, pp. 158-162, Springer, July 2007.

Hubert Garavel and Wendelin Serwe. *State Space Reduction for Process Algebra Specifications*. Theoretical Computer Science (TCS) 351(2), pages 131-145, February 2006.

Frédéric Lang. *EXP.OPEN 2.0: A Flexible Tool Integrating Partial Order, Compositional, and On-the-fly Verification Methods*. In Proceedings of the 5th International Conference on Integrated Formal Methods IFM 2005 (Eindhoven, The Netherlands). Lecture Notes in Computer Science, vol. 3771, pp. 70-88, Springer, November 2005.

Radu Mateescu. *CAESAR_SOLVE: A Generic Library for On-the-Fly Resolution of Alternation-Free Boolean Equation Systems*. Springer International Journal on Software Tools for Technology Transfer (STTT) 8(1), pp. 37-56, February 2006.