Program Analysis Toolkit

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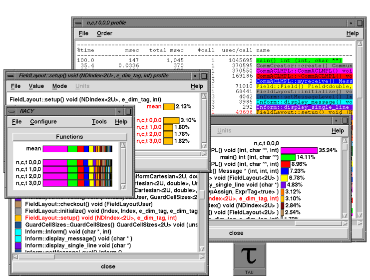
Application Source Code

Program Database Toolkit (PDT)

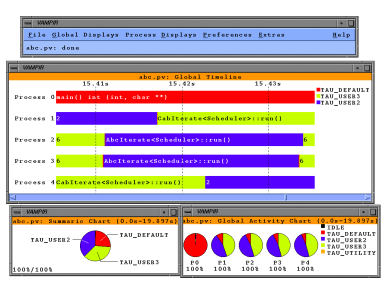
- C++
- C
- F90
- EDG Front Ends
- Intermediate Language Analyzer
- DUCTAPE Program DB Library

Tuning and Analysis Utilities (TAU)

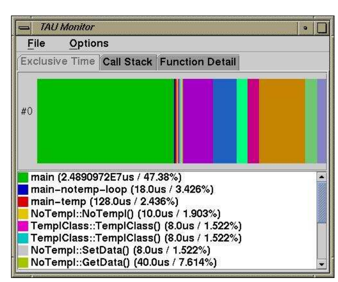
- TAU Source Code Instrumentor
- TAU Performance Mapping API
- Threads
- Counters
- Callstack
- Statistics
- Func DB
- Timers



Profiling



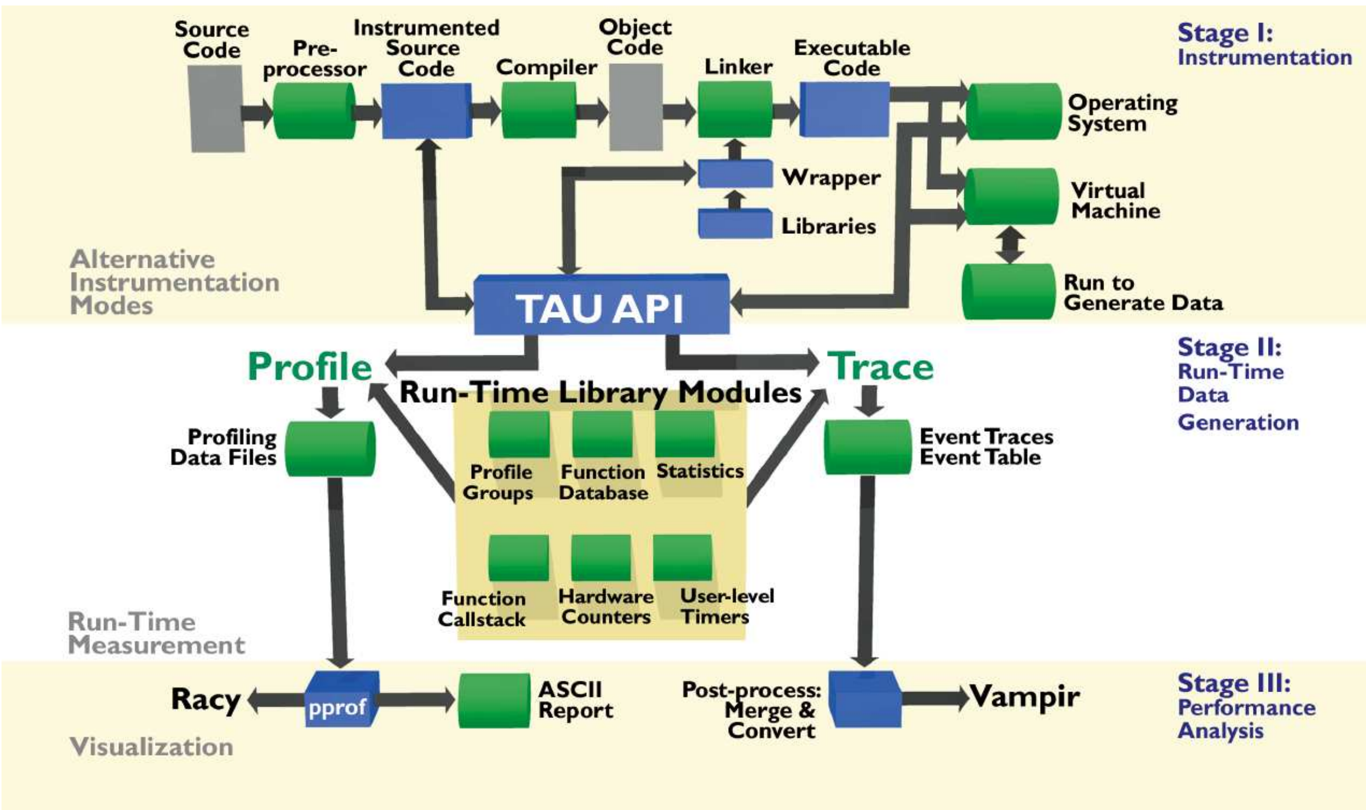
Tracing

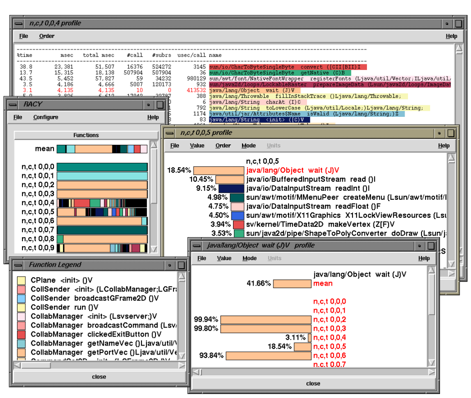


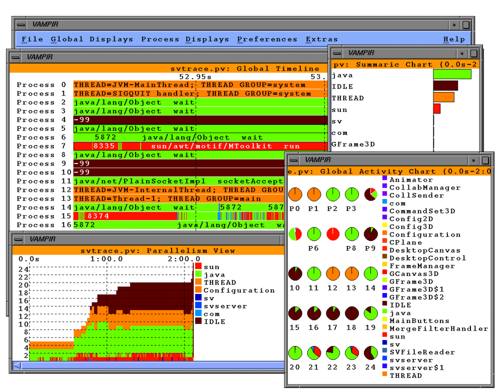
Monitoring

Architecture of TAU

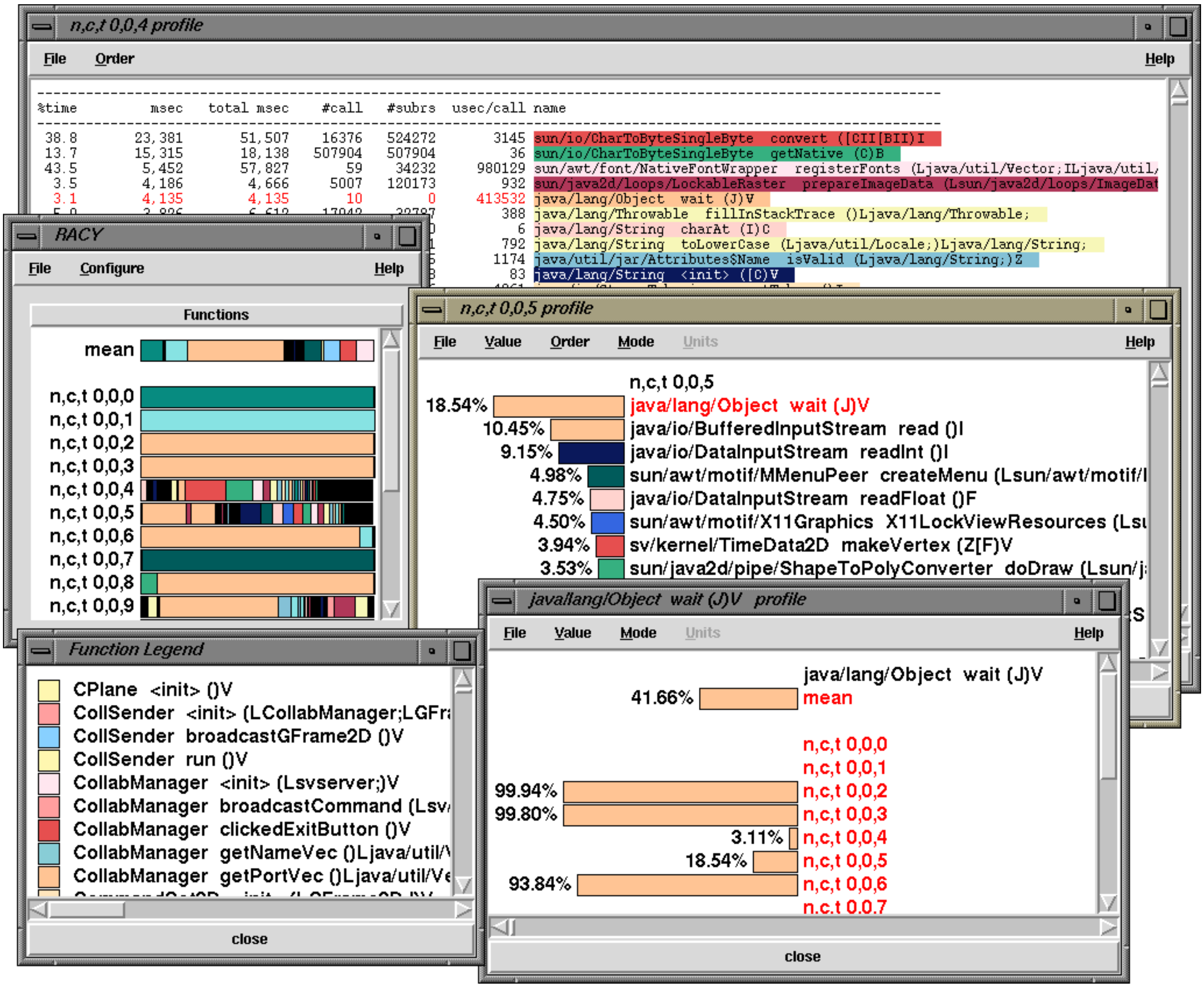
Tuning and Analysis Utilities



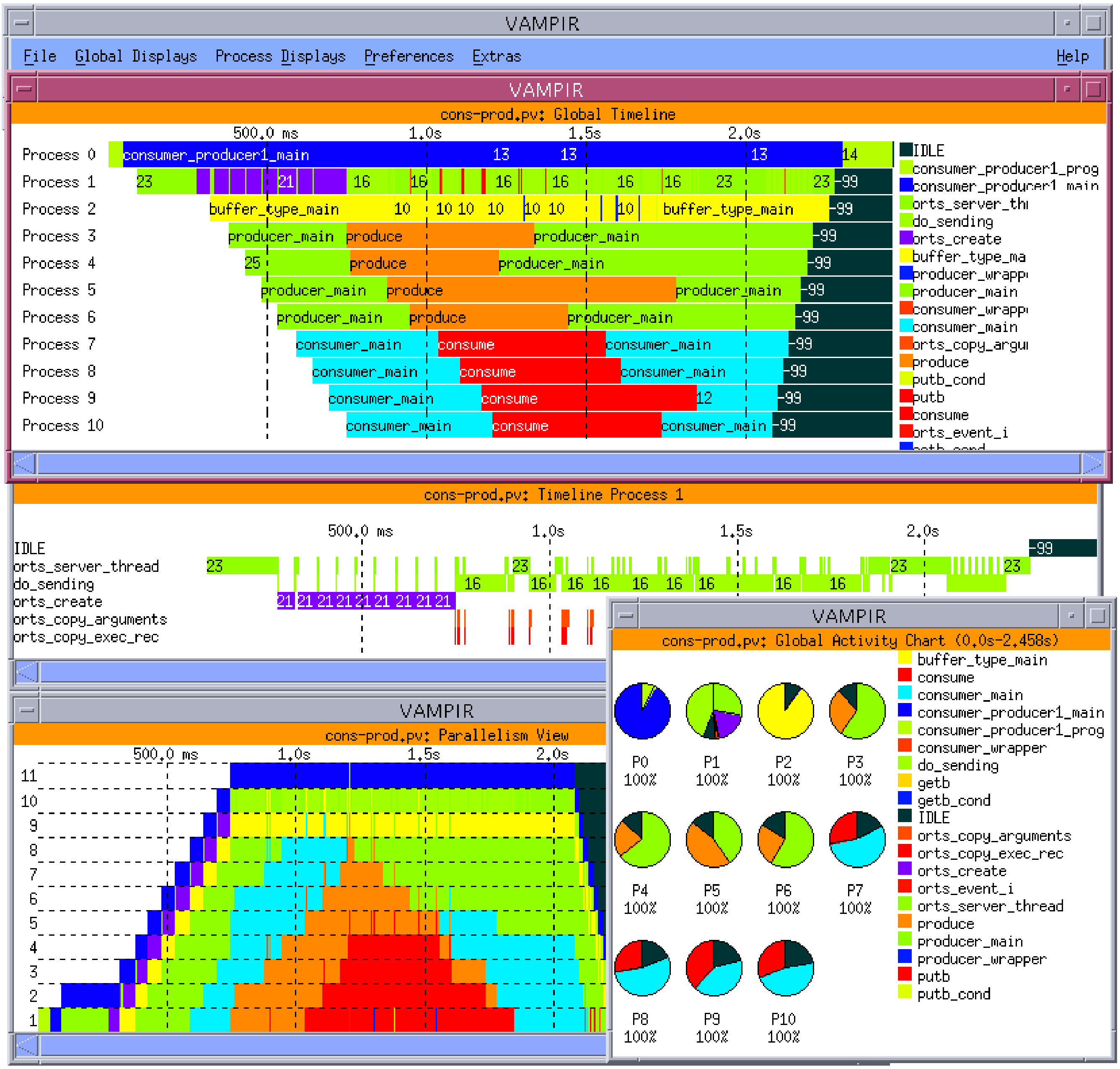




RACY - TAU Profile Browser



Vampir* and TAU

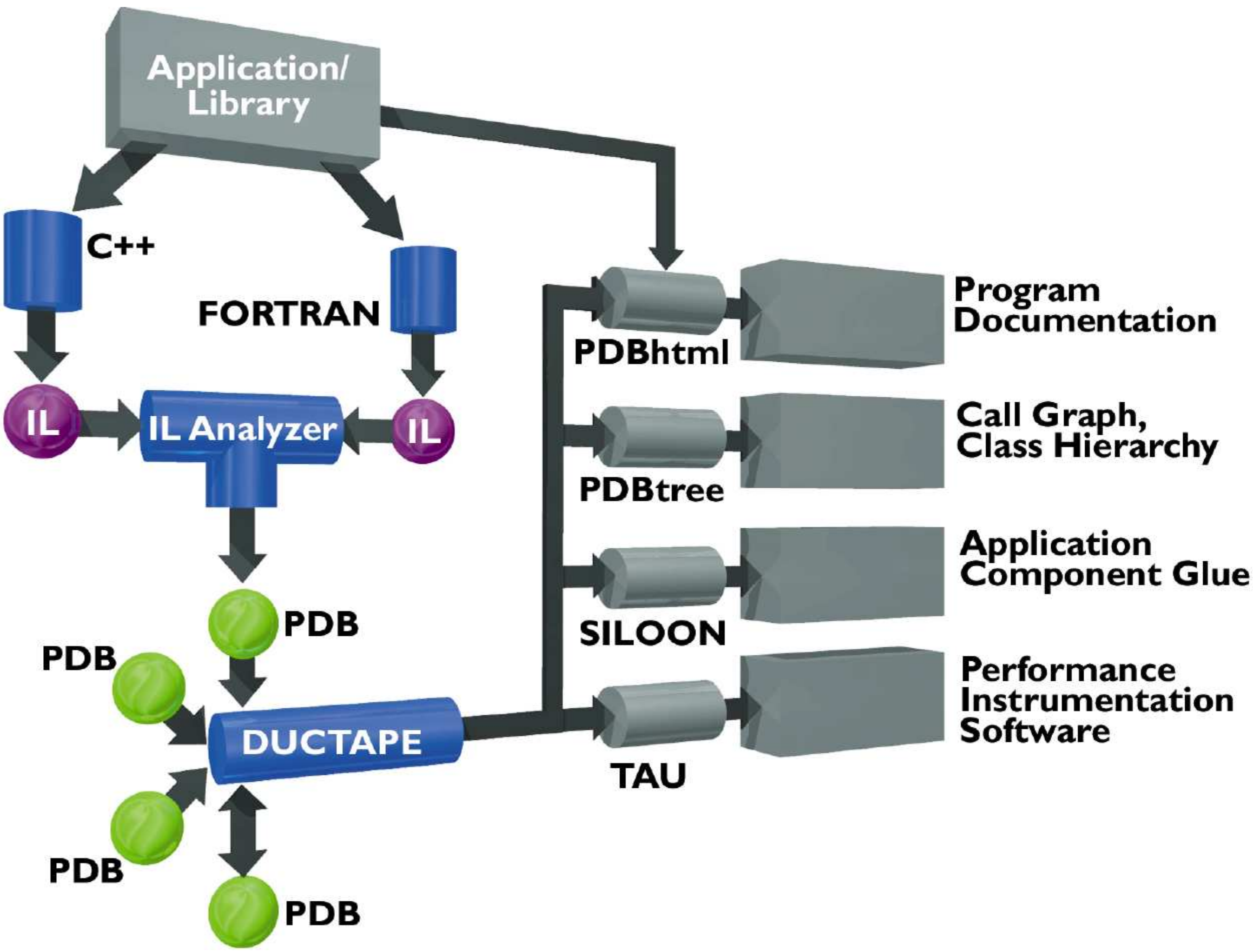


* http://www.pallas.de

TAU Portable Profiling and Tracing

- Platforms:
  - IBM SP, SGI Origin, Intel Teraflop, Cray T3E, HP, Sun, Windows 95/98/NT, Compaq Alpha Linux cluster, Intel Linux cluster
- Languages:
  - C, C++, Fortran 77/90, HPF, HPC++, Java
- Communication libraries:
  - MPI, PVM, Nexus, Tulip, ACLMPL
- Thread libraries:
  - pthreads, Tulip threads, SMARTS threads, Java threads,Windows threads
- Compilers:
  - KAI, PGI, GNU, Fujitsu, Sun, Microsoft, SGI and Cray
- Uses:
  - PCL (Performance Counter Library, ZAM)
  - PDT (Program Database Toolkit, UO, LANL, ZAM)
  - DyninstAPI (Dynamic Instrumentation, U. Maryland)
  - Vampir (Trace Visualization, Pallas)
- URL: **http://www.acl.lanl.gov/tau**

Program Database Toolkit



PDT Processing Steps

- Edison Design Group (EDG) Front End:
  - parses a C++, F90, Java source file
  - creates an intermediate-language (IL) tree
- IL Analyzer:
  - processes the intermediate language tree
  - creates another file in “program database” (PDB) format, that can be easily and efficiently read by a programming or a scripting language
- DUCTAPE (C++ program Database Utilities and Conversion Tools APplication Environment):
  - processes and merges PDB files
  - is a C++ library that provides access to the “program database” for applications
- URL: **http://www.acl.lanl.gov/pdtoolkit**