Program Analysis Toolkit

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Program Database Toolkit (PDT)

Application Source Code

C++ C F90 EDG Front Ends

Intermediate Language Analyzer

DUCTAPE Program DB Library

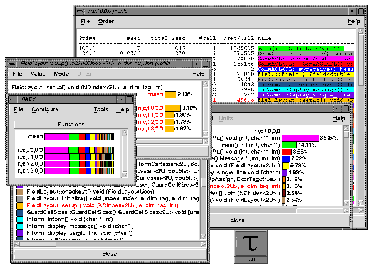
Tuning and Analysis Utilities (TAU)

TAU Source Code Instrumentor

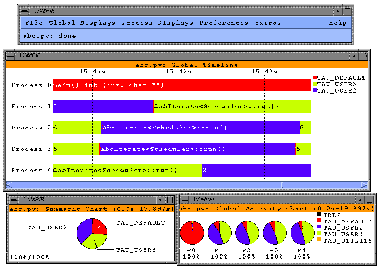
TAU Performance Mapping API

Threads Counters Callstack

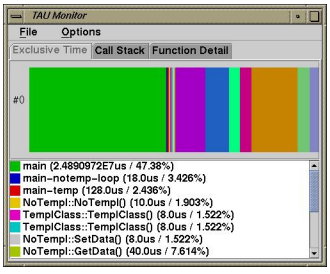
Statistics Func DB Timers



Profiling

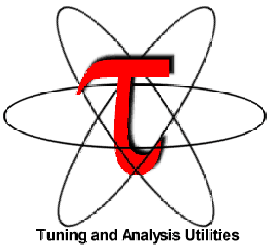


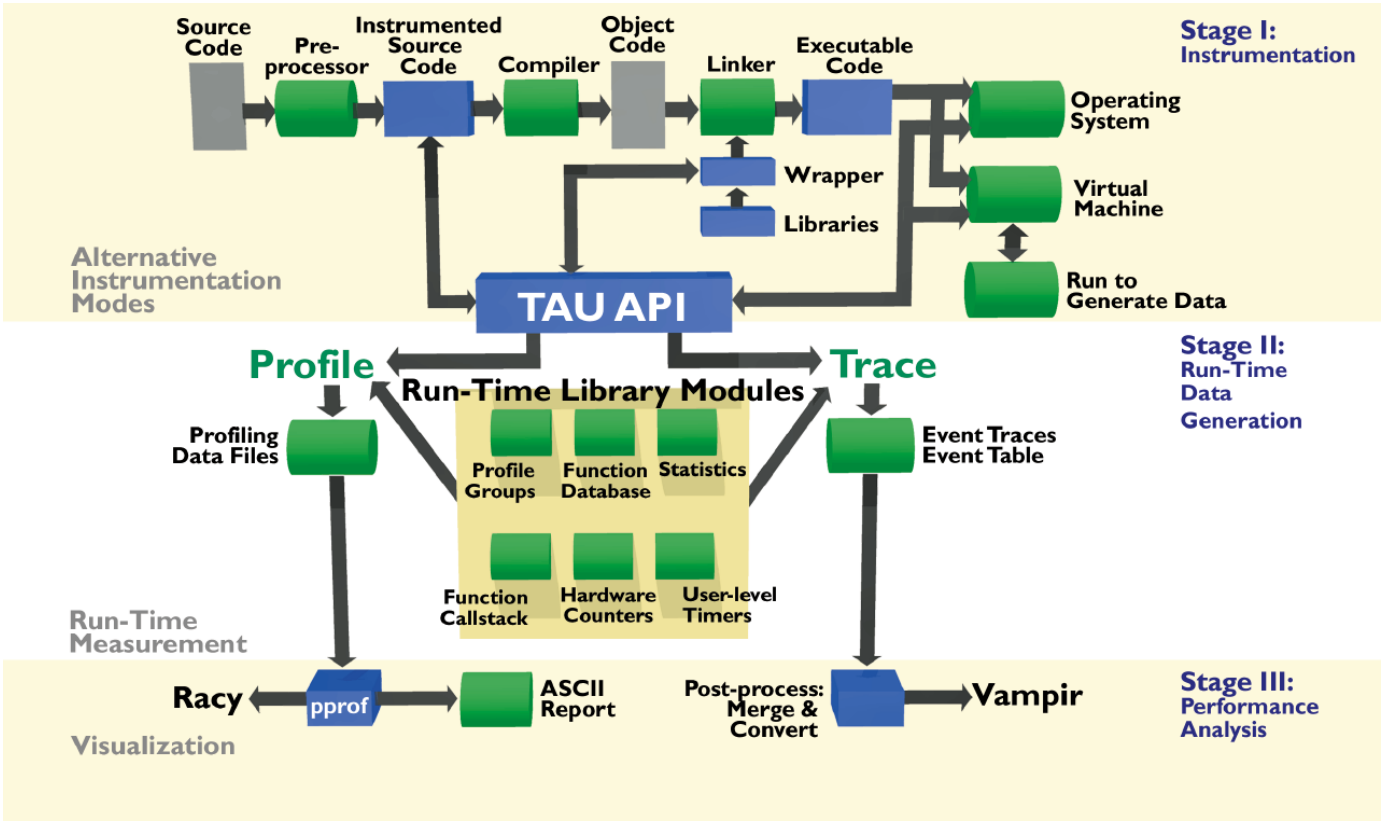
Tracing

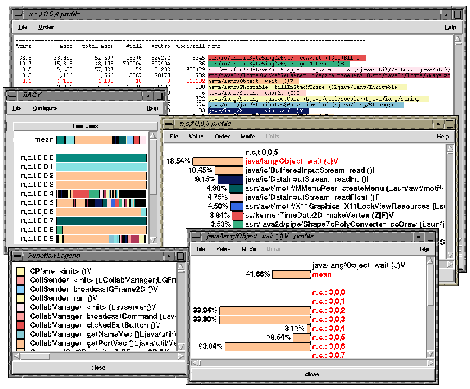


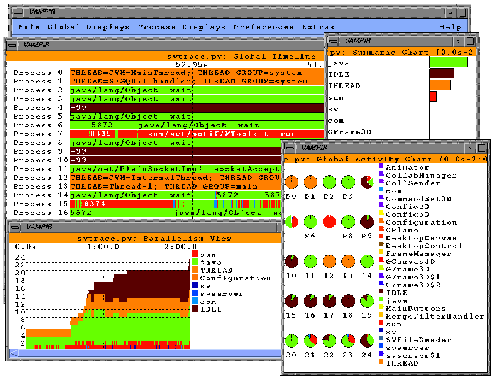
Monitoring

Architecture of TAU

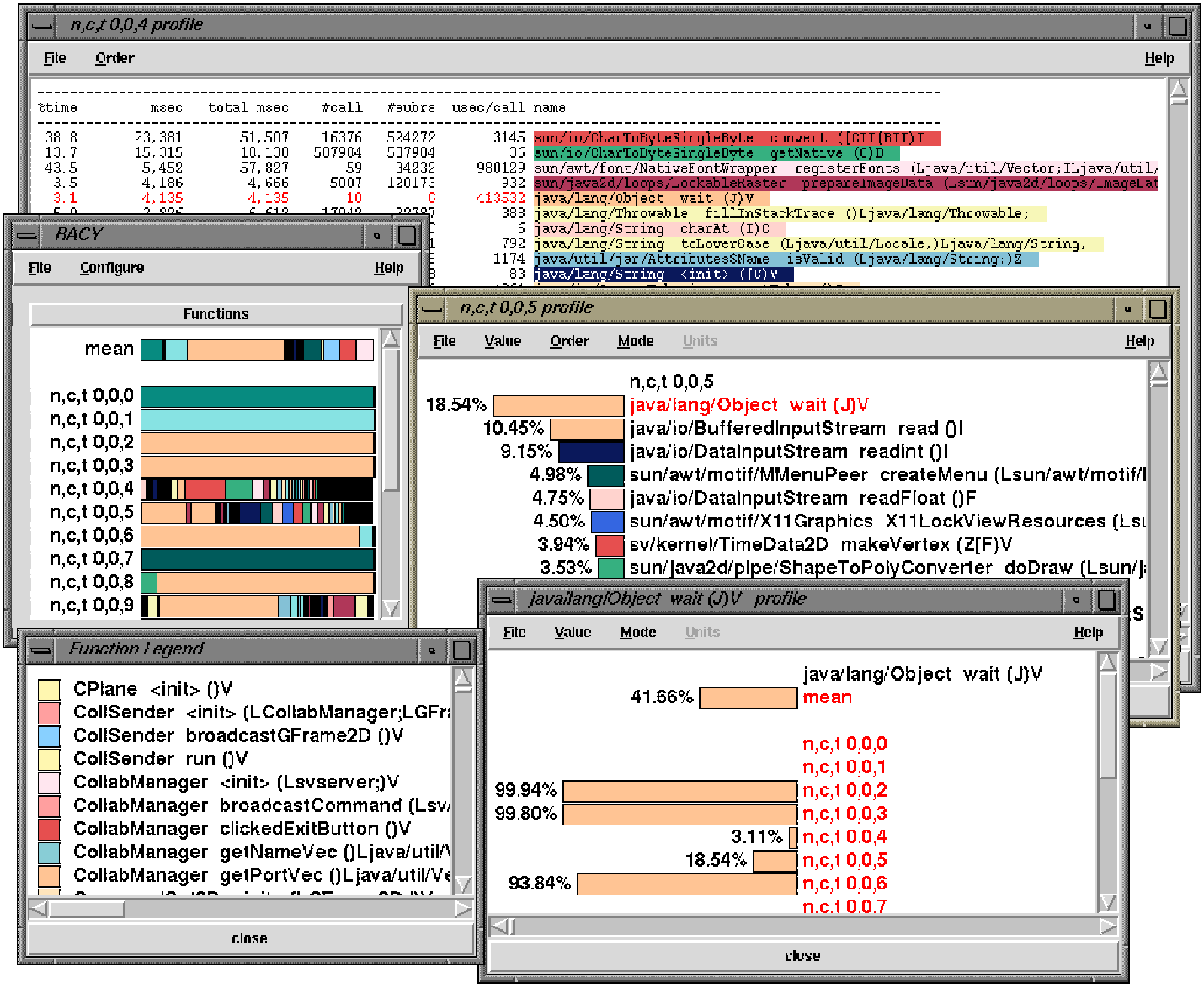




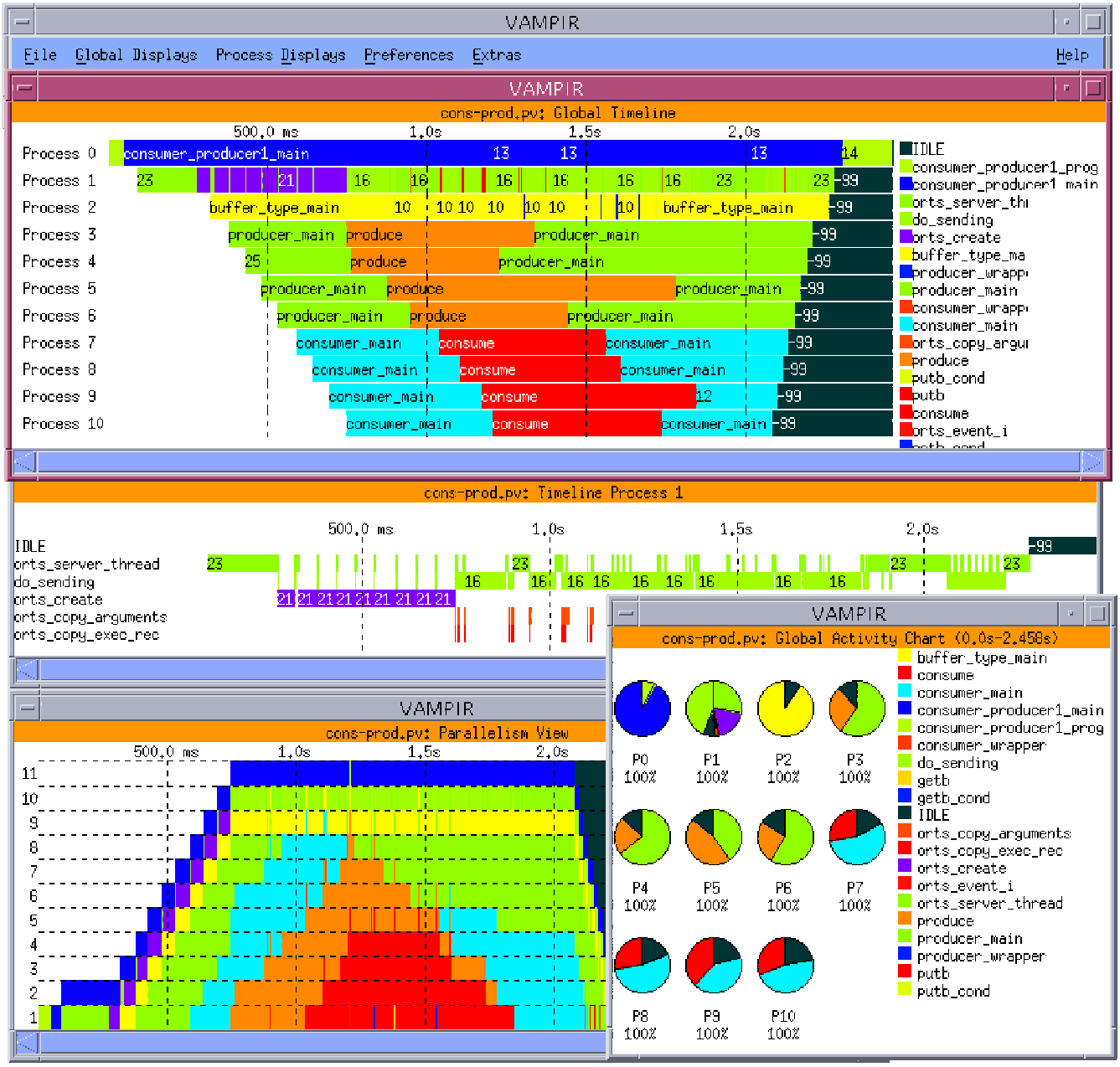




RACY - TAU Profile Browser



Vampir* and TAU

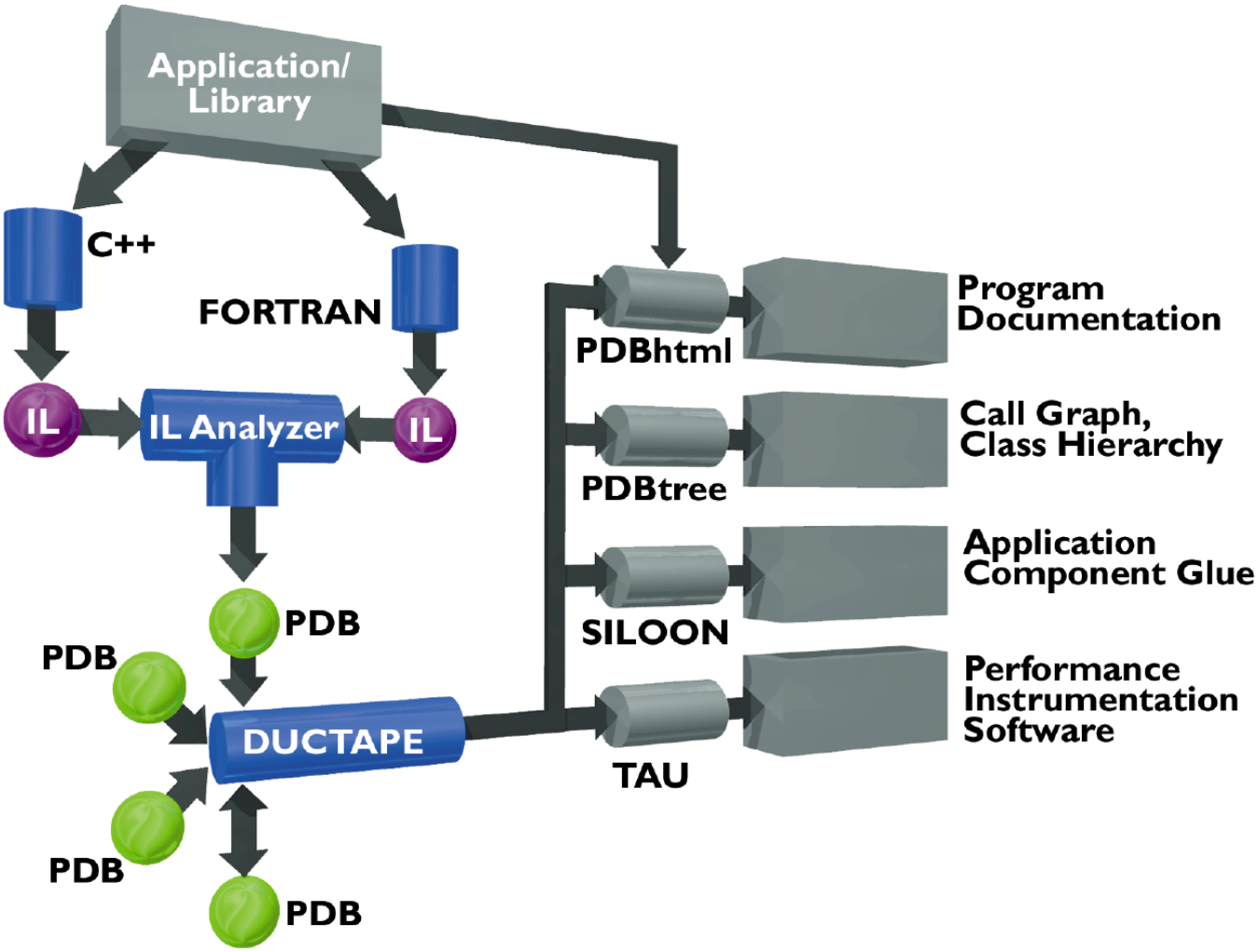


*** http://www.pallas.de**

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**