Advanced parallelizing Compiler(APC)

Users

Interactive   Interactive

Debuggers

Algorithms
Sequential   Parallel

Parallelization Tools

Programming Languages

Sequential
Fortran
C Pascal
Prolog JAVA

Parallelextension
HPF HPC++
Various Fortran Extensions
OpenMP PVM MPI

Parallel
Occam Linda,Id
GHC CSP DFC
SISAL,Valid

Preprocessors
Parallelism extraction.Data distribution

Parallelizing Compilers

Parallelism extraction
Data dependence analysis (Inter-procedural, Runtime, Symbolic, etc.),
Control dependence analysis, Program restructuring,
Multigrain parallelization, Hierarchical parallelization, Speculation

Scheduling and Memory optimization
Data distribution, Data transfer and task execution Overlapping, Cache control

Code generation
Optimized data transfer and synchronization code generation, Runtime dynamic
scheduling routine generation, OpenMP code generation, (Global) register
optimization

Parallel OS
Memory and processor management, Dynamic scheduling

Platform machines
PC(Single Chip Multiprocessors, Super-scalar, VLIW, etc)
WS servers, HPC (Multiprocessor systems), Supercomputer clusters