Documents Useful for Understanding Elcor

Acyclic scheduling

Inter-region scheduling [1].

Modulo scheduling

Modulo scheduling of DO-loops [2].
Register-pressure sensitive modulo scheduling [3].

Register allocation

Rotating register allocation [4].

If-conversion and the use of predicates

If-conversion to form predicated code [5].

Analysis of predicated code

Analysis of predicated code [6].

Critical path reduction (CPR)

Compiler transformations to reduce the length of the critical path through a computation [7, 8].

Machine description

The machine description database and query interface used by the ILP compiler to understand the relevant details of the target processor [9, 10].

Bibliography

1. S. Abraham, V. Kathail and B. Deitrich. Meld scheduling: relaxing scheduling constraints across region boundaries. Proc. 29th Annual IEEE/ACM International Symposium on Microarchitecture (Paris, France, December 1996), 308-321.

2. B. R. Rau. Iterative Modulo Scheduling. HPL Technical Report HPL-94-115. Hewlett-Packard Laboratories, November 1995.

3. A. E. Eichenberger and E. S. Davidson. Stage scheduling: a technique to reduce the register requirements of a modulo schedule. Proc. 28th Annual International Symposium on Microarchitecture (Ann Arbor, Michigan, November 1995), 338-349.

4. B. R. Rau, M. Lee, P. Tirumalai and M. S. Schlansker. Register Allocation for Software Pipelined Loops. Proc. SIGPLAN'92 Conference on Programming Language Design and Implementation (San Francisco, June 17-19 1992).

5. J. C. H. Park and M. S. Schlansker. On predicated execution. Technical Report HPL-91-58. Hewlett-Packard Laboratories, Palo Alto CA, May 1991.

6. R. A. Johnson and M. S. Schlansker. Analysis of Predicated Code. Technical Report HPL-96-119. Hewlett-Packard Laboratories, December 1996.

7. M. Schlansker, S. Mahlke and R. Johnson. Control CPR: A Branch Height Reduction Optimization for EPIC Architectures. Technical Report HPL-1999-34. Hewlett-Packard Laboratories, March 1999.

8. M. Schlansker, S. Mahlke and R. Johnson. Control CPR: a branch height reduction optimization for EPIC architectures. Proc. SIGPLAN '99 Conference on Programming Language Design and Implementation (Atlanta, Georgia, May 1999), 155-168.

9. J. C. Gyllenhaal, W.-m. W. Hwu and B. R. Rau. HMDES Version 2.0 Specification. Technical Report IMPACT-96-3. University of Illinois at Urbana-Champaign, 1996.

10. S. Aditya, V. Kathail and B. R. Rau. Elcor's Machine Description System: Version 3.0. HPL Technical Report HPL-98-128. Hewlett-Packard Laboratories, July 1998.