Procedure ROTATE requires that the rightmost vine node X, the current pivot node U and U's leftmost child V be available. However, X and U can remain in memory until every node in every left subtree of U has been moved to the spine; at that point the lefthand nodes of U are packed into X, the right hand nodes of U form the new X, and the most recently moved node becomes the new U. We see then that ROTATE and PACK together would require at most two reads and two writes of every node in the tree; hence altogether at most $4N$ disc accesses. Indeed, a slightly more precise result may be stated: nodes originally in the spine of the tree would require at most two disc accesses each, while those originally in some left subtree would require at most four disc accesses each.

Consider now the number of disc accesses required by procedure COMPRESS, where the simplifying assumption is made that

$$N = (M^{\lambda+1} - 1)/(M - 1)$$

for some $\lambda \geqslant 0$; that is, that the $(M-1)$-balanced tree will in fact be a full M-way tree with maximum level λ. Observe that the compressions in any one stage of VINETOTREE require that the current spine nodes be accessed twice (one read, one write). Initially $N-1$ spine nodes are accessed, then in the next stage $(N-1)\operatorname{div} M - 1$, and so on. The total disc accesses are then given by

$$2\{(N-1)+(N-1)\operatorname{div} M - 1 + (N-1)\operatorname{div} M^2 - 1 + \ldots + (N-1)\operatorname{div} M^{\lambda-1} - 1\},$$

which is approximately

$$2(N-1)(M^{\lambda}-1)/[M^{\lambda-1}(M-1)].$$

Then for large values of M, compression contributes negligibly more than $2(N-1)$ disc accesses, so that the total for the $(M-1)$-balancing algorithm is at most $6N$ disc accesses. This result clearly holds also when level λ is not full.

We note finally that, similar to the case $M = 2$ considered by Stout and Warren, the algorithm described here can be adapted to yield a sorted list or array of keys, or to produce specialised balanced trees such as analogues of 'perfect' balanced trees.[2]

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Announcements

16–19 MARCH 1992

EDAC, The European Conference on Design Automation, Brussels, Belgium

Sponsored by the EDAC Association in cooperation with IEEE Computer Society and other European technical societies

Advance Notice

Aims

EDAC exists as a non-profit association of European DA professionals with the sole purpose of promoting a top-quality technical conference in the field of Design Automation. The aim is to meet the much-needed requirement for an international conference with a European flavour to provide a significant focus and forum for Electrical Engineering DA professionals.

Scope of conference

Emphasis will be placed on techniques and methods employed in all aspects of the use of computers in the design of electronic equipment, systems, boards, multi-chip modules and circuits. The scope will cover all areas of the design process from concept to manufacture and includes CAD and DA tools for analogue, digital, VLSI, microwave and high-speed electronics.

Sessions and Official Language

The conference will comprise contributed papers in oral sessions. All presentations and printed material will be in English.

Proceedings Will be published by the IEEE Computer Society Press.
Programme Chair Professor Hugo De Man, c/o CEP Consultants Ltd, 26–28 Albany Street, Edinburgh EH1 3QH, UK. Tel: +44 31 557 2478; fax: +44 31 557 5749.
For information contact: EDAC 92 Secretariat, CEP Consultants Ltd, 26–28 Albany Street, Edinburgh EH1 3QH, UK.

Conference information

Venue: The Conference will be held in the Palais des Congrès, Brussels.
Accommodation has been reserved nearby. Full details and a booking form will be included in the programme announcement in November 1991.

Additions to technical programme: The main emphasis will be on the verbal and poster presentation of the technical papers published in the Proceedings. In keeping with this main objective and scope a number of related activities will be included.

- Pre-conference tutorials
- Book stalls
- Focused discussion groups
- Fringe meetings on standards and other technical subjects will be accommodated
- A number of booths will be available to companies providing new and advanced products in this area
- Demonstrations of University CAD tools

Details are available from the Secretariat.

Registration fees: For members of the co-operating societies, registration fees for the three-day conference including lunches and evening social events will be in the order of BFR 15000.

EDAC 91 Proceedings: The Proceedings of EDAC 91 are now available and may be purchased from the Secretariat. Please contact the Secretariat for details.