scheduling would not be acceptable because of high processor idle rates. Instead a scheduling technique was used in which reconfiguration occurs whenever a task class queue becomes empty and as a result a processor assigned to that task class becomes idle. This scheme allows the system to respond to its own needs as they arise.

The results of the simulation are tabulated in **Tables 2, 3, and 4.** The measure of effectiveness used to evaluate the three allocation methods is derived from an inequality. If ML is the microstore loads per task for either the minimax or minisum allocation methods, ML^* is the microstore loads per task for the Burroughs allocation method, R is the reconfigurations per task for either the minimax or minisum allocation methods, RT is the time it takes to calculate a new reconfiguration, and $MSLT$ is the time it takes to load a processor's microstore, the basic allocation methods are more efficient than the Burroughs method whenever

$$\frac{RT}{MSLT} < \frac{ML^* - ML}{R}.$$

The figures in the last column of Tables 3 and 4 indicate that the basic allocation methods are quite attractive for systems with a small number of task classes. For systems with more than three task classes, the basic allocation method's attractiveness increases as the number of processors in the system increases. This is probably due to the increase in the number of active tasks with an increase in the number of processors. This increase results in a lower number of reconfigurations per task.

It remains to assess the relative merits of minimax and minisum allocation. A comparison of Tables 3 and 4 shows that minimax allocation is slightly superior to minisum allocation for most of the system configurations. Furthermore, the reconfigurations per task for both allocation methods are equal for all but one of the configurations. This indicates that minisum allocation using the future task entry prediction method mentioned above does not increase the reconfiguration interval as was hoped.

5. Conclusions

A technique has been presented to allocate processors in a dynamically microprogrammable multiprocessor system. This technique attempts to minimise the overhead due to microstore loading in such a system. The technique incorporates a number of algorithms which were shown to optimise certain measures. Finally, the results of a simulation study were presented which indicate that the allocation technique proposed is more efficient than an allocation scheme suggested by Burroughs for realistic values of microstore load time and time to calculate a new system configuration.

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Book reviews

Fourier Transformation and Linear Differential Equations, by Zofia Szmydt, 1977; 502 pages. (*D. Reidel Publishing Co.*, $34.00)

This volume derives from the author's lecture courses in Cracow and Warsaw during the years 1966–74, and is a revised and extended version of the original Polish edition of 1972. Its aim is to serve as a textbook for graduate students who attend a course on partial differential equations in a 'modern' setting. By this we mean that the classical concept of a solution is enlarged to include any *distribution* satisfying the given differential equation; if the data occurring in the fundamental limit problems (i.e. initial- or boundary-value problems) considered are sufficiently regular then every distributional solution is also a classical one. The substantial mathematical foundation needed to achieve the extra generality is provided in the first two chapters, which contain an elegant exposition of the theory of distributions and their Fourier transformation. This takes up nearly half the book and could be used independently as the basis for an introductory course on distributions. In the following chapter basic definitions, concepts and methods for differential equations are presented, while the three final chapters are concerned with the application of the method of Fourier transformation to (i) the wave equation, (ii) the equation of heat conduction and Schrödinger's equation, and (iii) the Laplace, Poisson and Helmholtz equations. The aim here is, broadly speaking, to obtain the distributional counterparts of known classical results.

As the author emphasises in her preface, the book is intended as a monograph and not a course on differential equations, and the reader is referred elsewhere for the many important topics omitted. However, for what it achieves in its own particular domain this book can be warmly recommended. Material drawn from many sources (notably the work of L. Schwartz, L. Hörmander and the author's own research papers) is here beautifully integrated and re-presented. No labour has been spared to ensure accuracy, rigour, completeness and intelligibility. There are numerous exercises with hints for solution, a wealth of explanatory footnotes, a list of symbols and an extensive bibliography. The translation is of the highest quality. Except for the unfortunate omission of the publisher's name from many of the references, it is difficult to find a blemish.

G. F. MILLER (Teddington)

FORTRAN Programming—A Supplement for Calculus Courses, by William R. Fullar, 1977; 145 pages. (*Springer-Verlag*, $6.80)

This careful book is an introduction to FORTRAN programming intended for use by students who are concurrently taking a beginning calculus course. The aim is to provide a companion to calculus courses so that students can gain added insight into the ideas of the calculus through programming, but most FORTRAN features are fully covered. Calculus topics include sequences and series, numerical integration and elementary differential equations. The author is to be commended on an imaginative approach to the use of computers in mathematics teaching that others might do well to imitate.

PETER WALLIS (Bath)