Book Review

Microcomputers and their Interfacing, by R. C. Holland. Pergamon Press, Oxford, 1984, pp. 204. Hardback: ISBN 0–08–0311245, £15.00. Softback: ISBN 0–08–0311253, £6.95.

A major problem in writing any textbook is how much prior knowledge of the subject the intended reader should be assumed to possess. This problem is heightened for textbooks whose readership is likely to have little or no previous subject experience, and yet a worthwhile contribution can only be made by treating the topic seriously. Such is the dilemma facing the author of *Microcomputers and their Interfacing*. His solution is more or less successful. On the plus side, the book covers a wide range of both hardware and software concepts. Many readers will find useful the chapters on "Microcomputer Fundamentals" and "Microcomputer Construction". In addition, the specific description of interfacing the Intel 8085, Zilog Z80 and Texas Instruments 9980A are worthwhile inclusions. On the other hand, a significant failing in the book is a lack of balance, both from a general and a specific point of view. For example, having spent some time describing interfacing to 8085/Z80/9980A systems, why not spend more time on the equally ubiquitous 6500/6800 systems? Again, although the S-100 bus quite rightly gets a mention, it is more than likely that the majority of readers will require a much deeper understanding than is provided of the IEEE 488 bus or even the dreaded RS 232C. One further general point: the whole subject of interfacing is influenced now by the availability of a wide range of commercial interface systems, yet none of these gets a mention.

A chemist who is interested in interfacing microcomputers will operate from an even more specific viewpoint. Thus there is little merit in discussing the interfacing of floppy disc units, keyboards, VDUs or cassette recorders (which the book does), when these interfaces are transparent to the user. In contrast, interfacing analogue signals to microcomputers (and a chemist's world is essentially an analogue one) deserves more than the miserly 15 pages allotted to it. Similarly it could be argued that a chemist would require more information on the operation of stepping motors, solid state relays and the use of MOSFETS for power switching.

Apart from these broad comments, there are some very specific criticisms. The logic symbols of Chapter one do not conform to BS3939, and as such may be rather confusing. In Chapter two the concept of "Tri-state" logic is introduced rather abruptly, with no attempt to explain its value or its implementation. Opto-isolation is primarily used for the interconnection of two systems having separate grounding arrangements. This topic receives brief treatment in Chapter four, but little is made of this sometimes thorny problem, particularly where analogue and digital systems share a common ground. The decision to include a discussion on addressing modes in Chapter seven is laudable, but why choose to illustrate it with the CPU instructions of the 8080A that does not exhibit all these modes, when the well known 6502 does? In the same chapter programming techniques are discussed with no mention of such modish but valid topics as "Top Down Design" and "Structured Programming".

My overall impression then is of a book that lacks balance. The subject matter is too large to fit into 193 pages, and the necessary compaction has, I suspect, made some topics unintelligible to the uninitiated, whilst rendering others misleading. Nonetheless the book also contains much that is useful, not the least being a glossary of some of the more prevalent words of microcomputer jargon. At £15 for the hard-back edition, I would be reticent to recommend a purchase, but a soft-back version at £6.95 could justifiably appear on the shelves of a chemist who is interested in interfacing microcomputers.

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