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Division IV
All-Pervasive Zero
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Thoughts on Micro-Mini Computers

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THE FEARLESSNESS

The most proud and recent possession of the intellectual world in India today is the fearless expression of what is considered right and just. A write-up on this in the last issue of the year of the Newsletter is not totally irrelevant and out of place.

Raising the status of the Newsletter to its present position has been an uphill task and now it is a matter of some satisfaction that about 3,000 readers in India and abroad look eagerly for it. And it gives me a just pride that the delays and slips are not ignored and often resented. The Newsletter is doing excellent and we ardently hope for better performance in the coming years. The point that must never be lost sight of is the adequate financial support and no newsletter belonging to a professional society can rely on advertisement revenue particularly in the present economic mood of the country. And here an emphasis should be made of the immense communicative value of the Newsletter and it should not be brought under cost-effectiveness.

Talking of fearlessness one can’t forget the withdrawal of IBM from Indian scene and the due appearance of CMC on the scene. People have service standards of IBM and it is no secret that they are apprehensive about the quality, price, and promptness of much talked about CMC. And CMC on their part are holding some cards to their chest and have so much to do to attain this confidence. Calcutta Convention had a taste of this controversy. Membership is yet to hear about the deliberations of a Committee formed at the General Body Meeting under the Chairmanship of Shriyans.

Student contest, its quality, presentation and participation did usher a new era which will grow in spite of everything. A redeeming feature. And one can’t ignore the leadership of Shri P. Jayant to save the Newsletter from total authoritarian control of purely academically minded. In fact Division IV has done much but this ‘much’ has to prove itself significant.

Persons do require to know the method of acquiring new computers even in the limited available choices. Newsletter came to their rescue. A sketchy outline of acquisition procedure is now available in the pages of Newsletter. The latest in the list of computer aspirants are the combination of DST and CSIR. And when something is written about it by me it is embedded with lots of risks. But in all fairness and frankness this must be done. Nobody can have any doubts about capability and enthusiasm of the capacity of Dr. A. Ramachandran to deliver goods. He is dynamic and expects results. But in this attempt he is rather over enthusiastic. This is mostly on account of the approaches followed by the team helping him. The Data required is bound to suffer with so many aberrations from various institutions mainly on account of old personal equations prevailing in some of CSIR organisations which hinder project approach. These hold up total approach. Anyway, we wish Dr. A. Ramachandran all success and God’s speed.

Five years of comradeship and companionship have been quite enjoyable experience and I learnt a lot from my CSI friends. This may be my last page, perhaps, and as such ‘Adieu’ good friends and lots of luck.

A. D. Prajanda
2/6/78
FROM THE CHAPTRRES

BANGALORE CHAPTER

The following are the activities of Bangalore Chapter, during May 1978.

1. The Special General Body of CSI-Bangalore Chapter met on 21.5.78 and transacted the following:

(i) Annual Convention CSI-79:

After a brief introduction to the subject by Hon. Secretary, Dr. R. Sankaranarayanan, Chairman, Programme Committee CSI-79, explained the salient features of the programme planned for the convention during January 1979. It was followed by the talk by Mr. Vinay L. Deshpande, Chairman Organising Committee, on the organisation aspects and the various committees which are being formed. All the members were specially invited to join hands with the various committees formed to work towards making CSI-79 convention a successful event.

(ii) Elections to Managing and Nominations Committee:

The following were re-elected for the Managing Committee and Nominations Committee for the year 1976-79.

Managing Committee:
1. Mr. Vinay L. Deshpande : Chairman
2. Dr. R. Shrinivasan: Vice Chairman
3. Mr. P.S. Seetharama Rao : Secretary
4. Mr. R. Gopalakrishna : Treasurer

Nominations Committee:
1. Dr. R. Sankaranarayanan
2. Mr. H. G. Suryanarayana
3. Mr. N. Chakrapani

(iii) Other subjects like conducting various Workshops and Courses were also discussed.

BHIOPAL CHAPTER

The following are the activities of the Chapter during the month of May 1978:

1. Mr. E.R. Powell of Canada, Consultant to the M.P. Forest Development Corporation spoke on "State of Art of Computers in Canada" on 6.5.78, and

2. Mr. K.K. Raman, Assistant Manager, Computer Systems Department, Blue Star Limited spoke on "HEWLETT PACKARD series of computers" marketed by Blue Star on 17.5.78.

[R. R. Vazhani]

DELHI CHAPTER

A meeting between the Executive Committee of the Chapter and the delegates of Sumitomo Soji Kaisha, Ltd., Japan, was held on 11.5.78 to meet and know more about the development of Computers in the Far-East Region.

VADODARA CHAPTER

Microprocessor Programme — Success with Bang

All this started with a sudden entry of Microprocessor-based computer technology into our country—a micro-computer economically viable to suit the budget of varieties of organizations and beginning to think of decentralised data processing. This sudden entry of this technology took unawares of many managers and at this juncture when everyone was wondering how potential and powerful microprocessors based computer is, what are available in the country, and with so many other thoughts — Computer Society of India, Vadodara Chapter and Baroda Productivity Council were busy in planning the Orientation Programme on Microprocessors and Minicomputers.

Programme started on May 5th, 1978, with the inaugural speech by Shri S.K. Chaudhary, Collector, Baroda District. The chief guest, participants and waran, programme sub-committee Chairman of Baroda Productivity Council Shri M.G. Devarajan, Treasurer, Computer Society of India (Vadodara Chapter) propose a vote of Thanks.

Totally 54 persons from 30 different organizations participated in the programme. Sessions started with a convincing introduction of the subject by Professor J.R. Isaac, Indian Institute of Technology, Bombay—to meet the needs of different group mix, on 5th morning. Afternoon sessions were devoted to hardware and architecture of Microprocessors and Minicomputers which were covered by Mr. N.R. Dwajani, Iac Limited, Ahmedabad & Mr. S. Chandrasekharan, I.P.C.L., Baroda.

May 6th morning was devoted to software aspects by Professor T.P. Ramarao, Indian Institute of Management, Ahmedabad. Here came the end of theoretical aspects applied to practical considerations and loud applause from the audience, a gesture of usefulness and appreciation of the sessions.

This was not an end of the programme. On 6th afternoon and 7th morning sessions, a very much awaited Manufacturers Presentations took place. D.C.M. Data Products, Electronics Corporation of India Limited, Digital Systems International, Hindustan Computers Limited and Operations Research Group presented and explained their products to the participants. Also, the participants visited Microprocessors Centres at Digital Systems International and Operations Research Group premises.

Indeed, this was undoubtedly one of the unique programmes of national standards.

[S. G. Shah]

DIVISION IV

'SEMINAR ON INFORMATION PROCESSING FOR MANAGEMENT' (Business and Industry Managers' Group Meeting) is being organised at Ahmedabad by the Division IV and Ahmedabad Chapter of CSI on September 1 and 2, 1978.

Papers and Presentations on the following topics:
1. Selection and Acquisition of Computers
2. Management of Computer Systems
3. Data Base Management Systems
4. Data Communication Systems

Further details will be published in July issue. Interests enquires to:
Chairman, Ahmedabad Chapter of CSI
CS/1 Indian Institute of Management
AHMEDABAD.
THE ALL-PERVASIVE ZERO ??

R. Thigaran

The following story has been picked up from June 1975 DPMA News issue, which in turn came from a 1972 August issue of the Honeywell computer Journal who in turn picked it up from the 1974 August issue of "Standards Engineering" which in turn was found in "Simplified chemical coding for Automatic Sorting and Printing Machinery".

Many years ago, a Roman Civil Engineer, who was a high official in Alexandria, was approached by a young Arabian Mathematician with an idea which the Eastern believed would be of much value to the Roman Government in its road-building, navigating, tax-collecting, and census-taking activities. As the Arab explained in his manuscript, he had discovered a new type of notation for number writing, which is inspired from some Hindu inscriptions.

The Roman official presumably studied this manuscript very carefully for several hours, then wrote this reply:

"Your carrier brought your proposal at a time when my duties were light, so fortunately, I have had the opportunity to study it carefully, and am glad to be able to submit these detailed comments."

Your new notation may have a number of merits, as you claim, but it is doubtful whether it ever would be of any practical value to the Roman Empire. Even if authorized by the Emperor himself, as a proposal of this magnitude would have to be, it would be vigorously opposed by the populace, principally because those who had to use it would not sympathize with your radical ideas. Our scribes complain loudly that they have too many letters in the Roman alphabet as it is, and now you propose these ten additional symbols of your number system, namely: 1, 2, 3, 4, 5, 6, 7, 8, 9 and 0.

It is clear that your I-mark has the same meaning as our mark-I but since this mark-I already is a well-established character, why is there any need for yours?

Then you explain that last circle-mark, like our letter 6, as representing "an empty column" or meaning nothing. If it means nothing, what is the purpose of writing it? I cannot see that it is serving any useful purpose, but to make sure, I asked my assistant to read this section, and he drew the same conclusion.

We had been so much against reprinting of items from other published Journals that the feature became a rule. But the staff of Publisher's and author's notes or shall we say compiler's plea turned

When you attempt to show that you can manipulate these numerals, your explanations are particularly bad and obscure. For example, you show in one addition that 2 and 3 equal 5, yet in the case you write as

<table>
<thead>
<tr>
<th>7</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>5</td>
</tr>
</tbody>
</table>

this indicates that 9 and 6 also equals 5. How can this be? While it is not clear, it is evident that the other part is in error, for 7 and 1 equal 8, not 9.

Further on, you claim that your system enumeration is much simpler than the Roman Numerals. I regret to advise that I have examined this point very carefully and must conclude otherwise. For example, counting up to FIVE, you require five new symbols whereas we Romans accomplish this with just two old ones, the mark-I and the mark-V. At first sight, the combination IV means ONE before FIVE for four may seem less direct than the old III, but note that this alert representation involves LESS EFFORT, and that gain is the conquering principle of the Empire.

Counting up to twenty (the commonest counting range among the populace) you require ten symbols whereas we now need but three: the 1, 5, and X. Note particularly the pictorial suggestiveness of the V as half of the X. Moreover, it is pictorially evident that XX means twice ten and this seems much preferred over your 20. These pictorial associations are very important to the lower classes, for as the African says, 'Picture tell thousand words'.

You claim that your numbers as a whole are briefer that the Roman Numerals, but this is not made evident in your proofs. Even if true, it is doubtful that this would mean much to the welfare of the Empire, since numbers account for only a small fraction of the written records, and in any case, there are plenty of slaves with plenty of time to do this work.

Your so-called 'repeating and dividing' tables also require much more explanation, and possible correction of errors. I can see that your "Nine Times" Table, given sets which add up nine, namely, 18, 17, 36, 45, 54, 63, 72, 81 and 90 but I see no such useful correlation in the "Seven Times" table, for example. Since we have SEVEN, not nine, days in the Roman week, it seems far more reasonable we have a system that gives more sensible combinations in this table.

All in all, I would advise you to forget this overly ambitious proposal, return to your sand piles, and leave the number reckoning to the official census Takers and Tax Collectors. I am sure that they give these matters a great deal more thought than you or I can.

CSI Elections 1978-79

The results of the Elections conducted in April-May, 1978 and some relevant statistics, as communicated by the Nominations Committee, are given below:

The following are declared elected:

- President (1978-79): T. V. Balan
- Vice-President (1978-79): V. Basiram
- Secretary (1978-79): D. P. Tarmaster
- Treasurer (1978-79): B. B. Shyragon
- Representative for Division 2 (1978-79): C. R. Mathukrishnan
- Representative for Division 4 (1978-79): P. Jayanti
- Representative for Region 2 (1978-79): S. K. Karandikar
- Representative for Region 4 (1978-79): Anil Roy

<table>
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<tr>
<td>Ballots returned undelivered</td>
<td>24</td>
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<tr>
<td>Ballots received</td>
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<tr>
<td>Counted</td>
<td>681</td>
</tr>
<tr>
<td>Invalid</td>
<td>20</td>
</tr>
</tbody>
</table>

Members will be happy to know that a piece of land of about one acre allotted by the Tamil Nadu Govt. to the CSI, in the CTI Campus, Adyar, Madras has been physically taken over by the Madras Chapter on behalf of the CSI, on 27 April, 1978.
MANAGING WITH COMPUTERS

Mahesh Chand (Fellowship Student)
Indian Institute of Management, Bangalore.

"What seems to be coming by itself" said Aristotle more than 2000 years ago, "man's slavery will end". This simple proposition of the Greek philosopher sums up eloquently man's yearning to be more productive and creative. Man's yearning to be the master of his destiny continued. Albert Einstein said, "The important thing is not to stop questioning. Curiosity has its own reason for existing. One cannot help but be in awe when he contemplates the mysteries of eternity, of life, of the marvellous structure of reality. It is enough if one tries to comprehend a little of this mystery every day... Never lose a holy curiosity".

Perhaps, this is the man's curiosity and sustained effort to master his destiny, which has brought him into a new era, to which some call "Computer Age". The electronic computer—the artificial intelligence—an innovation comparable to the wheel, the steam engine, and the use of nuclear energy in its significance to mankind.

Computers have grown 10 millions times more in respect of speed, as compared to Mark-1, and 100,000 times in respect of storage. Use of computer is growing exponentially in most of the countries. In India at the beginning of 1975 there were 275 computers in operation and it is estimated that by 1981 more than 200 will be in operation. Developed countries are much ahead in the use of this electronic brain. For example, by 1973, in U.S.A. about 60,000 computers were operating. U.S.Government spent $15 billion on buying, setting up, and operating computers. And it is estimated that by 1980, 500,000 computers will be operating.

There are more than 12,000 applications in which computers have been used. Some of these areas are: Law; Medicine, Social Science, Business; Analysis of English Prose; Historical Research; Engineering; Science; Architecture; Management; Language Translation; Library Science; Music; Art; Accounting; Sports; Personal records; Product Scheduling; Order processing; Pricing; Financial Planning; etc. These are the few areas computers have made.

On the other extreme it is feared—there is something sinister about this device, which treats human beings such disdain and lack of feeling. In developed countries it will spare more leisure time for masses which may turn bad for society and in developing countries it will eat the employment opportunities. Not only this, by using and abusing electronic brains a new breed of white collar criminal has cropped up and is swindling millions in stolen goods, services and hard cash. The worst thing is that 25 percent of the computer crime may go un-detected or un-reported. D.B. Parker has estimated a total take through these acts as $300 million every year. Edward Bied estimates this figure as huge as 1000 million dollars every year.

B.F. Skinner, a noted behaviourist, blames the present technology in general. In Brief his argument is as follows. In trying to solve the terrifying problems that face us today, we naturally turn to the things we do best. To save the world from population explosion we promulgate family planning and look for better contraceptives. Threatened by a nuclear holocaust, we build bigger deterrent forces and anti-ballistic-missile systems. By improved farming we try to save world from famine, improved sanitation and medical care, we hope, central disease. Better housing and transportation will solve the problems of overcrowding and new ways of reducing or disposing of waste will stop pollution. But unfortunately things are not so easy. It is a frightening to note that technology itself is increasingly itself. As far as technology is concerned, man has made the populations of man more acute, war and medicine has acquired a new horror with invention of nuclear weapons and so on.

In the same way, the late computers have created several problems to human society. U.S. losses, for example, were induced in banks to encourage the banks and in insurance companies. They induced the banks but in insurance companies, not only in data banks etc. These most prevalent computer

(a) Employees breach of trust: is involved in perhaps 80 percent of all computer assisted frauds. For example a California Accountant, for example, could steal more than million dollars from his company by recording higher payments for raw materials in the company computer than the firm actually paid.

(b) Stealing of data from a computer system: A former employee of the company, for instance, was convicted to extracting the FEA's top secret computer operating programme through a terminal attached to his telephone.

(c) Thirdly the computer can be used to help crooks, burglars plan their activities. Few years ago in Chicago a ring of burglars recruited a computer to create a list of prospective targets.

(d) Other crooked forms have used computers to cheat their own customers and when caught putting the blame on computer system.

(e) Lastly computer time is quite often stolen.

From time to time articles have been appearing in literature finding faults with computer and use of computers. We shall keep ourselves from the demairs by recognising that computer is neither good nor bad but how we use it. Moreover, in India the use of Computer is still in its infancy and computer for India is more a necessity than a luxury.

However, there are two issues which are more relevant in Indian context. (a) Computer use and its effect on employment. (b) Change in manager's role due to computer.

Computers and Employment: It has been argued that few installations can be justified as an improve ment in productivity. But the vast majority of computer users are motivated by a decrease in costs and an increase in profits. How far this argument holds true in Indian context is still remain unresolved in absence of any relevant study.

However, on employment computer will have both qualitative as well as quantitative effect. In this regard there can be both pessimistic and optimistic outlooks. There is a relatively high unemployment in India and a rapid increase in productivity per semi-hour, many pessimistic description of social change can be given. Public and private sector both have over employment. Use of computer will further make massive displacement of blue collar and white workers. It is doubtful that this displaced labour could be used productively.

Optimistic view is that an improvement in productivity should also reduce costs and, hence low price in a competitive market would cause an increase in the quantity demanded, which increase in output, the reemployment of those who were displaced by the initial improvement in productivity.

Qualitative aspects include the changes in the form and structure of employment induced by the use of computers. Jobs effected by computer may either to be ungraded or downgraded in skill. This individual's autonomy and the degree of his personal interaction in the organisation are bound to change.

The computer systems will not only bring change in employment and job structures but also in organizational structure. Organizational structure will have to change. The level of decision making and powers of employees, are likely to change.

Management and Computer: In all countries these days, there is a growing interest in technology assessment, that is, the anticipating impact and side effects of new technology before going ahead with it. But question is how far can we assess this impact of technology? Peter F. Drucker cites many examples to emphasise that future impacts of new technology are almost always beyond anybody's imagination.

One example cited is of DDT. It was synthesised during World War II to protect American Soldiers against disease—carrying insects, especially in the tropics. But hardly anyone who worked on D.D.T. thought of applying the new pesticide to control insect pests infesting crops, forests, or live- stock. After a few years the disastrous impact of the radiation was in the developing countries.

On the other hand, many technology impacts predicted by experts never occurred. Other technology had been shaped by the manager is an example. Firstly in the late forties nobody predicted the computer use in business. And when it become apparent that business organisarions were buying computers for various purposes including to write letters, predictively by experts that the computer would displace middle management. But on the contrary, the middle management jobs increased at a much faster rate.

While recognizing these limitations of technology impacts forecast, we shall attempt to analyse few dimensions of computer impacts on Indian Management in the light of what western countries already have experienced. One of the major dimensions of computer's impact is in order to achieve the organisations objectives. Decisions are of two kinds, programmed decisions and non-programmed decisions.
THOUGHTS ON MICRO-MINI COMPUTERS

by
S. Chandrasekaran
Management Services Dept.
F. P. C. L., Baroda.

INTRODUCTION

The Computer Technology has been growing at an alarming speed and it has become very difficult for the users to keep abreast with the latest developments. Moreover the lack of adequate information on the progress in the Computer Hardware and Software - hardware and software - is a barrier for the Computer users. "MICRO-MINI COMPUTERS OF THE DAY REVEAL ALL THAT IS ALLURING AT THE SAME TIME CONCEAL ALL THAT IS VITAL." It is partly because, the innovators of Computer technology are rapidly changing the design. Before one starts unveiling, the existing computers, new species of computer-springs up and thus the gap remains unfilled. Under such circumstances it is inevitable for the users to orient themselves with the ever-changing dynamic technological growth in computers. Therefore, an attempt is made to give an overview of the trends in Micro-Mini Computers in the world and the impact of these computers in India.

Growth and Development of Computers

Human brain has been functioning as a computer since the dawn of history. With the development in Science and Technology, the need for a machine to do voluminous calculations has been progressively multiplying. However, after the invention of ABACUS in 6th century B.C., the Mechanical brain for solving problems came into existence only in the late 19th century. The first machine for accurate computations was invented by Charles Babbage in 1833, that could solve polynomial equations up to 6th degree with 20 decimal places. He had even thought of the string of cards with strategic holes (similar to Punch Card) for instructing the machine. Charles Babbage's work was the starting point for the Hardware and IBM Scientists to design the first Electronic mechanical computer in 1946. The concept of punch card was borrowed from Babbage's work. The Hardware Engineer remarked 'had Babbage lived for 75 years he would have been out of job.'

During this period George Boole devised a system of Logic based on statements 'True' or 'False.' The concept of Binary number system followed the Boolean Logic and it has radically changed the Electro-mechanical machines to Electronic equipments. UNIVAC-I was the Digital Computer manufactured on shop tables. These computers were giant machines occupying large space and generating lot of heat. With the advent of Transistors, Computers became sophisticated and smaller in size. The second generation machines like IBM 1400 Series and ICL 1900 captured the market, in 1950 and early 1960s. In India too we find second generation machines in many industries. The first computer manufacturing firm in India (EICAL) started with the second generation computer TDC-12 in the early 1970s. But in United States, the third generation machines using integrated circuits came to the market by late 1960s. The ICs-revolution in further miniaturization of computer systems. The capability multiplied many folds in its Hardware and Software capability and functioned as an Integrated Total system for Management Information System.

The last decade (1960-70) was the age of large systems where every one expected that computer must be able to process large amount of input data, perform Myriads of calculations and print out voluminous reports in the shortest time possible. The Micro/Mini Computers could not make any impact and it was completely cloude by the large systems like IBM 360. In the 1970s, a variety of control system applications. At the same time the 16 BIT Micro-computer (LSI-11), with speed and
9. On Line Systems

These computers could be used to control a process by activating the required input parameters in accordance with the process condition and control the output by using the feedback information.

10. Compatibility

Above all the flexibility of the machine makes it compatible to any industry.

Comparative Study of Micro Mini and Midi

A Scientists from Stanford University was designing a complicated calculator for a Japanese firm with minimum no. of components. Since he could not reduce the no. of basic IC chips, he was struck by a novel idea of incorporating the arithmetic and logic circuit in a single chip. Thus the heart of the computer, CPU is designed in a single chip. The single chip could perform the functions of over 500 transistors and thus one circuit could visualize the extent of technological development. By 1980 Texas Instruments and other companies started producing the chips in a mass scale. Since then computer manufacturers have tried to incorporate the single chip CPU for the latest version of computers.

CPU (MICROPROCESSOR) Memory

These three computers are portable from place to place by the following stalling procedure. This aspect has been distributed in the large

Micro-Computer

The addition of Memory and I/O interfaces to the microprocessor makes it a micro-computer. The LSI-II (16 bit Micro-computer) consists of four MOS chips, one each for control and data microphone and two micros, the micro-code Read only memory, the micro-instruction address sequence for the micro and for control data address port. The data input incorporates the path Register and Logic to execute micro instructions. The Microcoms are like memory containing micro-codes for execution. The machine capability can be upgraded by 'Micro-programming' and a powerful microcomputer could be built.

Before the introduction of Microprocessor, Mini Computers were manufactured by designing the CPU from basic logic circuits. Today the design Engineers of problem of reducing the size of logic circuits are eliminated by using the Microprocessor based mini computers.

The 8-bit Microprocessor with over 250 instruction set, 8 working registers stack printer, program status counter, Register and time memory of 20K-32K, turns out to be a mini computer. Normally Disk operating systems are provided along with mini's. BASIC and Fortran are widely used languages for the system. Since the cost of computer is low, the Mini are generally integrated with economical peripherals like:

- (1) Tele Type unit
- (2) CRT terminal
- (3) FLOPPY DISK
- (4) Casette Tape
- (5) Low priced table Top printers
- (6) Mini Disk

The Mini computer (small and medium large size computers) have wide range of faster peripherals ranging from Card Reader Magnetic tape to Heavy duty line printers CBSOL and Fortran are commonly used for Batch Jobs in these computers.

After that, their will be no. of Key punchers, verifiers, sorters, collators to prepare the input deck of cards. The cards are used only as intermediate storage and are normally destroyed after transferring the information on to the tape. The systems are normally used for the purposes of several times contras compared to the usages of systems, for the Job. A comparative study of Mini, Micro and Midi computers is presented below:

<table>
<thead>
<tr>
<th>Features</th>
<th>Micro</th>
<th>Midi</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory size</td>
<td>4K—12K</td>
<td>16K—64K</td>
</tr>
<tr>
<td>Bits/word</td>
<td>8—16</td>
<td>8—18</td>
</tr>
<tr>
<td>Language</td>
<td>BASIC</td>
<td>BASIC, FORTRAN, ALGOL</td>
</tr>
<tr>
<td>Function</td>
<td>Dedicated</td>
<td>Slow</td>
</tr>
<tr>
<td>1/O Programming</td>
<td>slow</td>
<td>ROM</td>
</tr>
<tr>
<td>Required uses</td>
<td>Extensive</td>
<td>Extensive</td>
</tr>
<tr>
<td>knowledge</td>
<td>1) Dedicated</td>
<td>1) Dedicated</td>
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<tr>
<td>Applications</td>
<td>2) Special purpose jobs</td>
<td>2) Special purpose jobs</td>
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<tr>
<td></td>
<td>Lab</td>
<td>Lab</td>
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<td></td>
<td>1) Data acquisition</td>
<td>1) Batch Jobs</td>
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<tr>
<td></td>
<td>2) Process control</td>
<td>2) External programs</td>
</tr>
<tr>
<td></td>
<td>3) Small general purpose jobs</td>
<td>3) Small general purpose jobs</td>
</tr>
</tbody>
</table>
Short Communications

CHOOSE YOUR OWN BUFFER SIZE

The buffer size provided by DOS FORTRAN on System/360 is limited to 260 bytes. This buffer size is not adequate for majority of data processing applications. A blocked tape having high blocking factor or large record size will result in error. The routine BUFSIZE removes this restriction and allows users to set their own buffer. However, the process of deblocking is to be done by a user.

Programs written in ASSEMBLER or COBOL language do not have this problem as they provide larger blocksize. The sort/merge program also permits large blocksize. Now any tape created with the blocksize greater than 260 bytes can also be processed under DOS FORTRAN.

S. G. Desai
Computer Centre
Physical Research Lab.
Ahmedabad 380 009.

The suggestion of Dr. Gupta regarding the formation of a National Computer Consultative Committee needs to be set up without any delay. Professor Meiron has also welcomed the suggestion. It is, therefore, possible that the National Computer Consultative Committee may get appointed very soon. The only doubt in my mind is whether the CSIR members will be willing to spare their time and energy in helping to formulate a national policy.

Yours Sincerely,
S. M. Vaidya
Poonawala

Dear Sir,
I am tempted to write a few lines on reading the presidential address by Dr. P. P. Gupta at the 1978 Annual Convention held in Calcutta as reported in the April issue of Newsletter.

Dr. Gupta is indeed to be congratulated in drawing attention to the question of national policy making in the field of Computers. While the Department of Electronics, Government of India has certainly played a very helpful role in evolving a policy, the problem really is the same. Department has also to function as a regulatory agency. It is quite possible that this dual role could lead in future to a conflict of interest within the same Department. There is a further complication that both the Electronic Trade and Technology Development Corporation (EITDC) and the Computer Maintenance Corporation (CMC) are directly connected with the Department of Electronics and there is a considerable interlocking role the same individuals have to play.
PERFORMANCE EVALUATION
FARMER V.: How many times can you invest one billion dollars and be wrong? Computers and People 1978, 27(1), 24-5.

SOCIAL DEVELOPMENT

APPLICATIONS
Air Pollution
On-line system monitors air pollution. Infosystems 1977, 24(9), 80, 82.

Astronomy

Business & Management
FOREST R. B.: Small is beautiful... and difficult. Infosystems 1977, 24(9), 51.

WINTER V.P.: Time-sharing service separates business from DP. Infosystems 1977, 24(9), 82.

Information Retrieval

Telecommunications

IFIP CONFERENCE: TELEINFORMATICS 79

CALL FOR PAPERS

Copies of an eight page announcement and call for papers can be obtained by writing to the Hon. Secretary, CSI. A summary follows:

Areas to be covered
Exploration of applications for distributed processing and networks. It will be the use of technology, rather than technology itself that will be the main focus.

Sub-areas
Impact on industry and commerce
Implications for the individual
Social consequences
Political issues (security and authentication, impediments to progress, standardization)
Technological aspects.

Deadlines
Sending notice of intention to submit a paper: June 20, 1978
(a form for this purpose is included in the announcement folder, but you can write separately, without waiting for the form).
A hundred word synopsis should accompany notice of intention to submit a paper.
Subject heading and title of paper should be given. Synopsis should clearly indicate depth of treatment intended so that referees can assess it.

Draft Text by September 15, 1978
Date of acceptance by middle Dec., 1978
Camera ready copy by February 15, 1979

Address
SECRETARIAT DE LA CONFERENCE
A.F.C.E.T.-156, Boulevard Pereire - 75017 PARIS
B.P. 571 FRANCE.

S. Ramani (CSI delegate to technical committee of IFIP: TC6)
A Company with a commitment.

CMC is a company with a commitment. It is committed to providing the following services to Indian computer users:

- Installation and Commissioning
- Hardware Maintenance
- Spares Procurement and Indigenisation
- Evaluation, Selection and Provision of Enhancements and Complete Systems
- Systems Consultancy and Support
- Training in all aspects of Computer Technology
- Research and Development
- A Demonstration Centre

2 Maintenance

It is the concern of every computer user to ensure that his computer does what he has paid for—give him an optimal level of performance. This in fact, is one of CMC’s major commitments—to provide the highest standards of computer maintenance services.

It is also providing services to IBM 360 at the Defence Ministry and the Indian Meteorological Department, Delhi and IBM 1401 and 1410 at LIC. And, of course, as of June 1, it is taking over the maintenance of most of the IBM installations in all parts of the country.

Over the past year, CMC has built up a nation-wide service network, based on a solid foundation of trained personnel and a stock of spares and components. Offices have been set up in Bombay, Madras, Calcutta, Delhi, Hyderabad, Bangalore, Jamshedpur, Poona and Ahmedabad.

So for any computer, big or small, old or new, of any make CMC has the expertise, the equipment and the engineers to maintain them. A commitment to the user to do so with a minimum of red tape and a maximum of efficiency.

CMC's maintenance services are well under way. CMC took over maintenance of SMI Memory Attachment at Delhi University as far back as April, 1977. Also ICL 1901-A systems at Mafatlal's, Voltas and Kirloskar Pneumatics, and the Robotron-1040 at Engineers India, Delhi and the Indian Meteorological Department, Poona. Recent additions are Burroughs 1700 at the State Bank, Bombay and Burroughs 4700 at IARS, Delhi.

<table>
<thead>
<tr>
<th>Customer</th>
<th>System Type</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMD</td>
<td>360/44</td>
<td>97%</td>
</tr>
<tr>
<td>LIC</td>
<td>1401/1410</td>
<td>98%</td>
</tr>
<tr>
<td>EIL</td>
<td>R-1040</td>
<td>94%</td>
</tr>
<tr>
<td>KPL</td>
<td>1901-A</td>
<td>99%</td>
</tr>
</tbody>
</table>

The commitment is to the computer user.