The problem is not confined to big mainframe computers.

find your staff milling about on the pavement because the security system won't recognise their swipe cards. If they break in, the lights may be out of action (microchips control the electricity supply). The lifts and air-conditioning systems may be affected too. (There's precious little use in spending thousands making your computers year-2000 complaint if they end up melting down because the air-conditioning system is non-compliant). Over come all these obstacles, and you will likely sit down in front of a computer screen but what will it show when you press the on switch?

haps reduce the amount of keystrokes necessary to enter a year — most Information Systems (IS) groups have allocated two digits to the year. For example, '1993' is stored as '93' in our data

55 from 93 and ann I'm 38.

So far so good. Bu pens in the year 2000 puter will subtract and will state that I old. This error will af

Getting tangled in the web

THE web is spreading its tentacles to stratospheric levels. Netscape CEO Jim Barksdale, speaking at the Java Internet Business Expo, remarked that 'the Internet took 5 years to reach a million users came it took 14 years, radio took 38 years and the telephone took 40 years." Undoubtedly, some food for thought. New information on web usage also
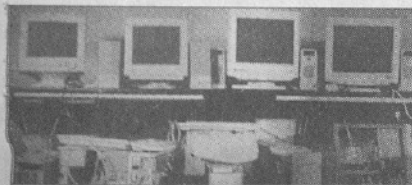
back Barksdale's comments. New data has revealed that many corporations are getting willingly tangled in the web and a large percentage of the growth of the Internet has been due to the IT outlook of these companies. Figures for 1996 show that there are 49 million users of the web, with commercial sale of US $7.5 billion. Projected figures for 1997 reveal that there will be 82 million users and sales will escalate to a gigantic $12.2 billion. But if these figures make you dizzy, check out the vertigo-inducing year 2022 estimates: 268 million users and turnover of $32.2 billion. May be it's time for you to finally get rid of

the short-wave radio and log on.

— Report

The 'Ivy League' of business schools

BUSINESS Week recently conducted a survey which ranked Corporate America's Global Top 20 for Nondegree Study. The universities were rated after an extensive survey of corporate human resources and management development executives.

Reportage

Here are the top ten:
Ranking/University (programmes offered):
1. Harvard, Boston (56)
2. Michigan, Michigan (62)
3. Northwestern (Kellogg), Illinois (60)
4. Pennsylvania (Wharton), Philadelphia (110)
5. Stanford, California (15)
6. Virginia, Charlottesville (Darden) (59)
7. Columbia, New York (41)
8. Insead, Fontainebleau, France (128)
9. Duke (Fuqua) (25)
10. MIT (Sloan) Cambridge, Massachussets (57)

— Report

The 700-MHz chip

SAMSUNG Electronics has developed what may be the fastest chip in the world, a 700-MHz Alpha processor, based on technology from Digital Equipment.
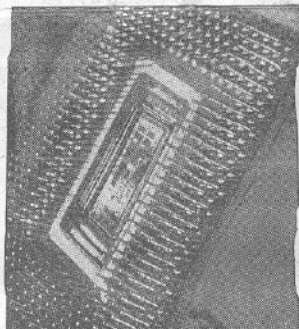
Alpha chips shipping from *Digital* currently run as fast 600 MHz, though Digital is expected to ratchet up the clock speed of its own Alpha chips in the coming months.

The company says it plans to begin commercial production of the Alpha chip in the second half of 1998, according to an article in the online edition of *Nikkei Business Publications,* which cited a report in the *Maeil Business Newspaper* of South Korea.

The 64-bit Digital Alpha is one of the *fastest chip architectures in the world. Digital* currently ships powerful workstations which use Microsoft's Windows NT operating system. Digital also ships servers based on the chip.

Intel recently agreed to acquire the Digital semiconductor plant that makes the Alpha

accounting & information technology

CAVEAT emptor. As cogs of the economic wheels, the salesmen amongst us are seldom courteous and gracious. The customer is hardly ever right, not at least when the salesmen is a smart alec and the customer happens to be a decent human being. The price of a good is based on the buyer's looks: how expensive is his watch, his tie, his glasses... the prices are adjusted accordingly. In the cut-throat competition of the business world today, the small-time retailers amongst us seem to take that figure of speech literally. After a visit to even your average grocery store, you feel you have been ripped off. It's the feeling of a heavier head, a lighter wallet and the petty but unnerving feeling that, say, bread and eggs shouldn't be costing so much (enough doesn't seem to be enough these days). Big businesses make an attempt, if only on paper, to follow rules and regulations but the small-time retailer goes unchecked and unaccounted for, not in the least bit of any help to his fellow citizen.

Hyper Text

nsday?

rors in mission-critical l or unconcerned.

culation that produces or uses time spans, such as an interest calculation.

If you have some data records and want to sort them by date (e.g., 1965, 1905, 1966), the resulting sequence would be 1905, 1965, 1966. However, if you add in a date record such as 2015, the computer, which reads only the last two digits of the date, sees 05, 15, 65, 66, and sorts them incorrectly.

These are just two types of calculations that are going to produce garbage. There are others.

The task facing us is to identify and correct all the date data and check the integrity of all calculations involving the date information. We must correct the data residing in all data files or write code to handle the problem.

There is no way to avoid the fact that our information systems are based on a faulty standards that will cost the worldwide computer community billions of dollars in programming efforts. Perhaps more importantly, we are going to suffer a credibility crisis.

date calculations. The only choice we have is to examine each line of code and make the necessary changes.

One IS person performed an internal survey and came up with the following results: of 104 systems, 18 would fail in the year 2000. These 18 mission-critical systems were made up of 8,174 programmes and data-entry screens as well as some 3,313 databases. With less than two years to go, someone is going to

Interactive

be working overtime.

By the way, this initial survey required 10 weeks of effort. Ten weeks just to identify the problem areas.

How many systems do you have? How many lines of code do you have in your organization? How many data files? How many maintenance programmers?

The problem extends beyond mere calculations and into the I/O processes of every application. Can you enter 2000 into your data screen, or can you enter only two digits, forcing the input of 00? Can your hard-copy

reports print four digits?

The crisis is very real and potentially very costly. Ken Orr, principal at the Ken Orr Institute, and Larry Martin, president of Data Dimensions, Inc., estimate that Fortune 500 organizations will each have to spend about 35 to 40 cents per line of code to convert all their existing systems to accept the change from the year 1999 to 2000.

That translates into about $50 million to $100 million for each company. The mind boggles at a maintenance problem with that

The techie optimist

Peter de Jager is considered to be an authority on the Year 2000 problem worldwide and speaks extensively in seminars and workshops on the issue. **Folio** *caught up with him on the internet and queried him on a problem that he thinks could cost the world US $1 trillion. Excerpts...*

Q. *Could you tell us about your own background?*
A. I have a Bsc from the University of Toronto (graduated 1979) with a focus on mathematics and computer science. I worked as a computer person from 1979 to 1993 when I went out on my own full-time. I have worked as a computer operator, programmer, programmer analyst, business analyst, information centre analyst, IC supervisor, IC manager, internal consultant and systems manager.

My interest and focus on Y2K began to intensify in 1991 and my first article on the subject was published in early 1993. I have shifted all of my activities to this area over the past few years and am now totally focussed on the issue of helping people understand what the problem is all about.

When did you realize the Y2K problem would become an apocalyptic one?
I actually prefer not to use terms like 'apocalyptic'... this is a problem we can solve if we choose to solve it. I was aware of the 'issue'

it's provided merely because it's requested. Regardless of what it costs, we must fix our systems.

The way the world is handling the problem, what is your vision of the world on 1st Jan ary, 2000?
If we were to continue to solve this at the speed we're solving this then we could look forward to a great deal of chaos. But I am a firm believer in mankind and believe that in the first quarter of 1998 we will see a change in the level of attention given to this problem.

You see, I am an optimist. I believe we have the necessary people, tools and skills required to solve this problem, what we seem to lack is the will to act.

How active do you think the US's role is to solve the problem?
"It is time for Clinton to take a leadership role... if Gorbachev has seen fit to get involved, then it is certainly time for the US President to become involved. The issue is now recognized as real and poses a significant threat to the worldwide economy specifically with respect to telecommunications.

One of the things Clinton could do is a nationwide address detailing the problem. Quelling the notion this is hype and exaggeration and calling on business leaders to ensure that the problem is

The starting point

How do we identify the problem data and the associated calculations? We have few, if any, standards for labelling data used in

maintenance problem with that price tag.

And the costs could be even higher. "The truth is, until we work through a complete cycle with some large organization, we are not going to really know," Orr says. ❑

solve it. I was aware of the 'issue' as early as 1979 when I began work at IBM (computer operator) but only began to get 'concerned' in 1991 when it was still not being discussed in the IT industry. After 2 years of talking about this with my peers and looking at programmes to see how they would fail I began to get very concerned and began to focus my efforts on making people aware.

tion and calling on business leaders to ensure that the problem is being properly addressed, with the appropriate amount of urgency and concern as befits a problem of this size. The idea is not to raise panic, but to squash complacency.

with their sets, choosing options from the screen, and using home banking and shopping services.

How are signals compressed?
The transmitter sends only the data needed to pass on the difference between one picture and the next, such as a hand moving. This vastly reduces the amount of information that has to be sent.

How will I receive the signal?
Through a rooftop aerial, or via cable or satellite — although each of these three 'platforms' will offer different channels. You will also need to buy either a set-top box to decode the signal or a fully digital TV set.

Why will I need a set-top box?
Viewers without digital TVs need the boxes to convert the digital signal back into an analogue one, so it can be understood by their sets. There will be different boxes for satellite, terrestrial or cable TV.

What if I want to receive satellite and terrestrial TV?
The boxes for satellite and terrestrial viewing are incompatible. But whichever viewers choose, they will be able to buy an extra, upgraded module to allow them to watch both. ❑
— Dawn/Observer Service.

Which company has made the most advancement in solving this problem?
If you are referring to Y2K vendors I must withhold my comments? Why? Because in the last six 6 years I have made a point of never mentioning vendors. The moment I do, then the press will say that I am merely talking about this so that I can promote a single vendor for personal gain.

If you are referring to companies who are fixing the problem for themselves... then there are companies who stand out. Bank Boston, Prudential, Shell, NatWest Bank, Bank of Montreal, CIBC Bank etc.

Has there been a substantial input from companies from Pakistan and India?
A. Yes... the whole off-shore development trend will be useful worldwide in solving this problem and should, if managed correctly, provide much economic benefit to these countries.

Are there are any software programmes available to help solve the problem?
A. Yes, there are hundreds of companies offering solutions that range in effectiveness from 'barely worth using' to 'a tremendous help in solving the problem.' There is a partial list of about 130 companies who advertise on my homepage.

The Gartner Group estimates the loss to business to be about US $4-6 billion. What is your own estimate.
A. My estimate is that the problem will cost somewhere in the region of US $1 trillion to fix worldwide... but like any estimate,

> If we were to continue to solve this at the speed we're solving it, then we could look forward to a great deal of chaos. But I am a firm believer in mankind and I believe that in the first quarter of 1998 we will see a change in the level of attention given to this problem.

And the overall readiness of the US...?
The US leads the world in action... but is hardly what you would call 'taking this seriously' as yet. In particular the US government need to recognize that this problem breaks the rules... that agencies must be freed of procurement rules so that they can respond to a problem which is mainly limited by time... The US government must also recognize that budgets must be loosened so that administrations can deal with this problem. One of the largest concerns I have is that the US government will be crippled by the flow of programmers to the real world because the govt cannot/will not respond with competitive salaries.

I predict that you will see big movements by the US in the first quarter of 1998 as they begin to realize the seriousness of this problem. If we could get them to do now, what they will be forced to do then, we will have saved crucial 2-3 months... precious time that will make the difference between limping across that bridge to the future, and not being able to find the on ramp.

And the rest of the world?
The rest of the world, in particular Europe, is still asleep, showing only intermittent signs of waking up. Notable exceptions are the UK with it's increasing government involvement, and Canada which continues in its time-honoured tradition of trailing slightly behind the USA.

Australia is also coming online, as are South Africa and the Nordic countries... but the rest of the world, in particular the Pacific Rim, have yet to hear the message and respond. ❑

—Y.I.