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ELECTRONICS

WHY TI MAY WELL RETURN TO HOME COMPUTERS

After a year that Texas Instruments Inc. called "the most difficult period in TI history," the Dallas electronics giant withdrew from the home computer business. Wall Street, long wishing that TI would abandon its costly, decade-long pursuit of the consumer, ignored the $111 million third-quarter loss the company posted and in the first day after the Oct. 28 announcement boosted TI stock an astounding 22.75 points, to $124.50.

But TI may not be abandoning this end of the computer market for good. Instead of trying to compete in the cut-throat, low end of the market for minimum performance machines selling at $200 or less, TI may try to sell consumers a lower-cost version of its $2,200 personal model, the Professional Computer.

That machine, which is selling well, is directed almost 'exclusively at executives. When asked by BUSINESS WEEK about a future move by his company back into the home computer market, TI President J. Fred Bucy replied, "No comment."

But insiders say that a stripped-down version of the TI Professional already is in development at the company's Austin (Tex.) Data Systems Group. To handle this product, many observers expect the company to merge its consumer and computer operations, which have both been under Bucy's direction since June. Such a merger, says one manager, "would facilitate moving Data Systems products through consumer channels."

HOMEWARD BOUND? A return to home computers may be necessary if TI wants to stay healthy in the personal computer business. Customers may now doubt TI's commitment to its Professional Computer, a product that competes with International Business Machines Corp.'s Personal Computer. One way to counteract this would be to add new offerings to its Professional product line—something TI never did in home computers.

More important, now that IBM is taking a junior version of its Personal Computer to the high end of the home computer market (page 49), TI may be forced to do the same. "Home and personal computers are converging in price and performance and applications, and broadened distribution is inevitable for

the personal computer products," says Clive G. Smith, a market researcher at Yankee Group. "TI has the broadest range of outlets in the home computer industry. It will have to use them if it wants to compete against IBM."

TI says that it has no intention of abandoning the retail network that it has spent more than 10 years developing, because the company sees more and more electronic products going into mass-merchandising channels. And TI is going to extraordinary lengths to protect those channels as it closes out the 99/4A home computer. "We've taken care of our retailers, so that if we ever decide to reenter the [home computer] market, we haven't slammed the door," Bucy points out.

BETTER SERVICES. Emphasizes TI Chairman Mark Shepherd Jr.: "We are going to continue to support and service the 99/4A." Part of the third-quarter $330 million write-down went to set up reserves to protect retailers from losses resulting from TI's actions. The company will continue to build some peripheral products to fulfill commitments to its retailers, and it will manufacture software for an unspecified time. "We will continue to support the 99/4A with television advertising throughout the Christmas season," Shepherd says.

TI not only will continue to provide one-year warranties on its 99/4As but also plans to repair out-of-warranty machines, which will come as good news to the current 1.5 million 99/4A owners. In fact, the company still repairs TI-brand digital watches, a business it left in 1981.

Most observers had not expected to see TI, with 20% of the market, drop home computers. As late as September, TI said emphatically that it intended to stand behind its home computer operation. "My feeling is that they would have had a good Christmas season [if they had stayed in home computers]," says Egil Juliussen. chairman of market researcher Future Computing Inc.

"Our 99/4A business did pick up, but not at a sufficient rate," explains Bucy. "It was a very bitter pill to swallow. But how much blood can you lose?" TI operating losses already have exceeded a half-billion dollars this year for home computer operations alone. For the first nine months, the company posted an after-tax loss of $223 million on sales of $3.3 billion.

PRESIDENT BUCY: WITH RETAILERS STILL IN PLACE, "WE HAVEN'T SLAMMED THE DOOR"

Industry analysts figure there are between 500,000 and 1 million TI units unsold. When the company effectively halved the retail price of the 99/4A to $49.95, retailers handed the Dallas company new orders for at least 200,000 machines the Monday after its pullout announcement. TI decided to pull out now, Bucy says, because "this is the best time to move inventory—not after yearend." ▣

DONE

REMEMBERING "BLACK FRIDAY"
by Charles Good
Lima Ohio User Group

The Lima newsletter doesn't often reprint material from other sources since we pride ourselves on usually being able to publish original newsletter articles. In this November 1993 issue we are making an exception to honor the 10th anniversary BLACK FRIDAY, that fateful day in late October 1993 when TI announced its exit from the "home computer" market. We are reprinting articles from the mass media of that time. Some of these articles were also reprinted in the Lima newsletter in 1988 to mark the 5th anniversary of BLACK FRIDAY.

I remember back then panicking when I heard the news on national television. Just a few months earlier I had spend $99 for an Extended Basic cartirdge and invested BIG BUCKS (about $680) in an expansion system that included a "free" PE box from TI along with a disk controller, SSSD drive, and an RS232 so I could use my new $399 Gemini 10X printer. I didn't yet have memory exapnsion. I vividly remember phoning my father-in-law, the only other local 99/4A user I knew well and asking, "What are we going to do?" He had the an expansion system with 32K, RS232, printer, but no disk drive or controller. I was beginning to figure out that I really needed that 32K to run some of the better extended basic software and I thought that if I didn't do something FAST I would never get one. So the next day I drove to my local K-MART and purchased the last 32K card in stock for only $139. A week later I was back at K-MART to purchase a backup console for $50. My father-in-law meanwhile spent days on the phone trying to get through to 800-TI-CARES. When someone finally answered the phone, he ordered his disk controller and SSSD drive and was grateful he could get them at any price before the supply was exhausted.

A few weeks later, on a Sunday in mid November 1993 the Lima J.C. Penney store had a blowout sale of 99/4A software and hardware. They brought in stocks from other J.C. Penney stores and had table after table scattered around the store stacked high with command modules, joysticks, program recorders, and new $50 consoles. (There were no PE boxes.) The croud was enormous! All the good stuff, including all the consoles, sold out in about 3 hours. The tables with command modules were scattered and the software was in no particular order. The croud was so large that it was difficult to get near many of these tables full of software. Someone would shout, "I want STORY MACHINE." Someone else would spot STORY MACHINE in one of the piles, grab it, and throw it to the person who wanted it. BOXES OF COMMAND MODULES WERE FLYING THROUGH THE AIR! There were even a few Extended Basic's available for only $49. I saw some these XB boxes in customer's hands, but couldn't find one for myself. I did purchase 8 educational command modules for about $30-$40 each, a set of joysticks for $19, an official program recorder with cable for $49 and a 10 inch TI color monitor that was part of the store's demo TI system. This monitor had a price tag of $499 on it, but because it was used I got it for only $175. What a steal! My wife was ready to kill me when she found out how much money I spent that day.

Except for the joysticks I still have all this official TI stuff and it still works, a tribute to the ruggedness of 99/4A hardware and command modules. The $680 "free" PE box and the $50 backup console are now my main system. The $175 monitor is attached to the Lima User Group's mobile computer cart and is seen by many who attend seminars at the annual Lima Multi User Group Conference. Just yesterday some friends of my 8 year old daughter were over at my house playing with some of the very same educational command modules I purchased at Penney's that Sunday so long ago.

DONE

Business Day

The New York Times

Retreat Set By Texas Instruments

$99 Computer Line Is Ended After Big Loss

By ANDREW POLLACK

Texas Instruments Inc., battered by its second huge quarterly loss, announced yesterday that it was ending production of its 99/4A home computer and pulling out of the home computer business.

"In order to limit further financial drain on T.I., we have made the decision to withdraw from the consumer home computer business," the company said in a statement attributed to Mark Shepherd Jr., its chairman, and J. Fred Bucy, president.

That announcement came simultaneously with the company's report that it had lost $110.8 million in the third quarter of this year, after a $119.2 million loss in the second quarter. The latest loss was in contrast to net income of $36.9 million, or $1.57 a share, in last year's third quarter.

Loss on Computers

In home computer operations alone, the company lost $330 million before taxes, including a write-off associated with pulling out of the business. In the second quarter, it lost $183 million on home computers, bringing total losses in two quarters to more than $500 million.

The statement said that production of the company's home computer would cease in November and that there would be "significant" layoffs at the company's home computer operations.

The company said it would also substantially lower the price on the 99/4A to help clear remaining inventory from the store shelves. The computer now sells for $99: a $149 retail price plus a $50 rebate.

Business Model Continued

Texas Instruments said it would continue to make and sell its Professional Computer, a more expensive personal computer designed primarily for business use. It also said it was remaining in the calculator business.

The company did not specify how many layoffs it would have or what the price cuts would be. Charles W. LaFara, a large mail order distributor of the home computer products in Oklahoma City, said that he had heard from T.I. employees that there would be 4,000 layoffs and that the price of the computer would be reduced to $47 wholesale, from $147, with the rebate removed. "I think I'm going to be sick," Mr. LaFara said.

The pullout raises the prospect that existing owners of the T.I. home computer will find it more difficult to obtain servicing and new programs to run on the machines. There are more than a million owners of the low-priced machine, making it by some estimates the second most widely owned computer, after the Commodore VIC-20 and ahead of the Apple II.

Texas Instruments said that it would continue to provide service for the machine. It did not say who would provide software for the machine, but it appeared clear that new software would be developed only if other companies thought they could make money doing it.

Home computer sales are estimated to represent less than 10 percent of the company's revenues, which fell in the third quarter to $1.01 billion from $1.05 billion in the same period last year. Not counting consumer electronics, revenues climbed 11 percent, the company, whose major product is semiconductor chips, said.

The announcement marked the latest casualty in the home computer and video game businesses. Although demand for home computers is growing rapidly, supply has been growing even faster, leading to oversupply

and steep price cuts. Mattel Inc. has already pulled back on plans to market a home computer, and there is speculation in the industry that Warner Communications' Atari is also considering withdrawing from the market.

New Companies Entering

At the same time, new companies are entering the business, moving it in a new direction. Coleco Industries recently started shipping its Adam, and the International Business Machines Corporation is expected to introduce its home computer next week. Both these new machines are in the $600 to $1,200 price range and are more useful than the computers like the 99/4A, which is limited to playing games and some simple tasks unless a lot of equipment is added.

While many industry analysts had speculated that T.I. would pull out of the home computer business, the company has been insisting it would stay in. Less than two months ago, it hired a Procter & Gamble executive to revamp its consumer operations. Yesterday's announcement was, therefore, something of a surprise, especially coming just before the heavy Christmas selling season.

Texas Instruments said that retail sales of the 99/4A were disappointing and that there was still excess inventory on retail shelves, which limited new orders and led to an operating loss in the quarter. "With this situation continuing into October, it became clear that fourth-quarter demand would not be sufficient to prevent large additional losses," the company said.

"The first nine months of 1983 have been the most difficult period in the history of T.I.," the two officials said in the statement. "We believe that, with the painful, but correct, decision to withdraw from the consumer home computer business, that period has now ended."

Favorable Response Expected

The company's withdrawal from home computers is bound to be greeted favorably on Wall Street. Analysts have long noted that, even though home computers are only a small part of T.I.'s business, the losses were so large as to outweigh the profits from all other divisions combined.

Texas Instruments Quits Home Computer

Analysts have also often said that T I, whose other businesses include semiconductor manufacturing, larger computers, seismic exploration and defense electronics, is not cut out for consumer business. It withdrew from digital watch business two years ago.

The Dallas electronics company, with 1982 revenue of $4.33 billion, said that its loss came at a time when its businesses other than consumer products were improving. For the first nine months of 1983, T.I. lost $222.9 million, in contrast to a profit of $101.5 million in the first nine months of 1982. Revenues climbed slightly to $3.28 billion from $3.22 billion.

Painful Saga Ended

The withdrawal from the home computer business marks the end of a saga that has been embarrassing and painful for Texas Instruments from the start. The company in 1979 was one of the first to market a computer strictly geared toward home use, as opposed to office use. But the machine, which sold for $1,150, was too expensive and was a failure.

Starting in the middle of 1982, however, prices began dropping to as little as $100 for essentially the same machine that sold for $1,150 a few years earlier. Sales of the Texas Instruments home computers, as well as those of other manufacturers, started soaring late last year, and it looked like the T.I. home computer was on its way to success at last.

This year, however, Texas Instruments ran into problems in February when it had to withdraw its computer from the market briefly because of an electrical problem. It also started losing money because prices were too low, while Commodore International, its chief rival, could continue to produce its VIC-20 at the same low price for a profit. The Texas Instruments computer also ran into problems because other computers had more software.

Earlier this month, it was learned that T.I. did not plan to introduce a more powerful home computer, the 99/8, that it had been previewing to retailers for more than six months.

T.I. is not the only home computer manufacturer to have problems. In addition to Mattel's pullback and delays in getting Atari computers to market, Coleco was late shipping its Adam computer, meaning it will fall far short of its sales goals for the year. And Commodore, the only company that has been profitable, is now running into problems because of a shortage of disk drives and what retailers say is a high defect rate in its Commodore 64 computer.

The home computer field thus resembles a battle in which all sides kill one another off and no one is left standing. This will make the path clearer for I.B.M. At the same time, ironically, there might be a shortage of home computers in stores this Christmas because of the carnage wrought by the previous oversupply.

Computer Update:

Balky *Adams*, Vanishing *TI's*

In our September report on computers, we described the *TI 99/4A*, then selling for $100, as "a loss-leader for the costly *TI* peripherals needed to run some of the better applications programs available for it." The *TI 99/4A* is now a total loss: Texas Instruments has decided to abandon the home computer market and will no longer make its much-advertised *TI 99/4A*.

However, the manufacturer is not abandoning its advertising campaign, since it wants to clear existing stock off retailers' shelves. By mid-November, retailers were practically giving away the *TI 99/4A* for $50 or so. It's not a good gift.

You would still need a peripheral expansion box and a 32K memory expansion card to put this model to best use. Those items, like the basic computer itself, are out of production and, even if you find them, they are costly—together, about $250 at distress-sale prices.

Further, programs to run on the *TI 99/4A* are likely to grow increasingly scarce. Unlike most other makers of home computers, Texas Instruments produced almost all its own software rather than license independent publishers to develop software. While it's possible that independent publishers may now be licensed to market programs for the large number of *TI's* in homes and schools, the programs would probably be available only by mail order. Most retailers give shelf space only to programs for the computers they sell.

The also-rans

TI 99/4A. This model, currently selling at a knockdown price of $100, looks like a computer well worth considering—until you consider it carefully. It has a true typewriter keyboard, and there is an extensive library of good educational software available.

But the low price of the *TI 99/4A* can be deceiving. A good deal of the software available for the *TI* requires more than the 16K memory included in the basic price. To expand the memory, you must plug in a peripheral expansion box ($250) and a 32K memory expansion card ($300). Thus, to gain access to many of the more-attractive applications programs, you need not a $100 *TI 99/4A* but a *TI 99/4A* system that will cost about $750, by the time you add a tape player and a couple of joysticks.

The only word-processing program we could find for this model (the *TI Word Processor*, $100) is on a disk. To run it, you need the aforementioned peripherals plus a disk drive ($400) and a disk controller card ($250). That brings the price to almost $1400—before you buy a printer.

We regard the basic *TI 99/4A* as a loss-leader because of all the high-priced TI peripherals required to make it a practical computer system. It can be argued that the basic *TI 99/4A*, without any peripherals, is still a cheap tool for learning BASIC. But we found the keyboard unusually cumbersome to use, and the *TI 99/4A* ran BASIC programs we devised rather slowly. The *TI* is sold exclusively in toy stores and department stores, where salespeople may not be well-informed.

Business Day

The New York Times

THE NEW YORK TIMES, MONDAY, OCTOBER 31, 1983

Texas Instruments' Pullout

Over a Million 99/4A Users Will Be Hurt

By ANDREW POLLACK

The losing battle of Texas Instruments Inc. in the home computer market has taken a severe toll on the company's finances, its reputation and its employees. Yet more than one million other people — the owners of the Texas Instruments 99/4A home computers — will suffer as well.

They are likely to find it much more difficult to get their machines repaired and to find new programs and peripheral equipment, such as data storage devices and printers, to use with the machines. Their situation, will be somewhat akin, but perhaps more severe, to the situation con-
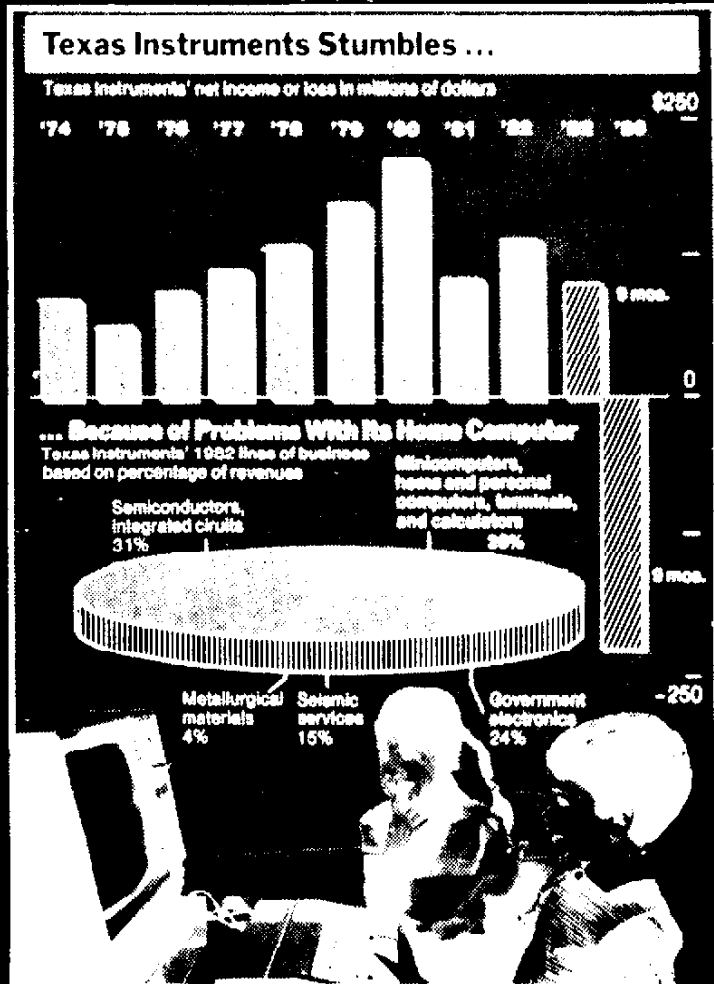
Texas Instruments' move out of the home computer business may be of little help to its competitors, except for I.B.M. Page D4.

fronting those who own eight-track tape players and find that many of the latest recordings are no longer available in that format, analysts say.

"It's a real letdown to have almost 2 million users left without a country," said Roger Harrison, vice president of a group of Texas Instruments home computer users in Northern New Jersey. "All of a sudden, we're aliens." Mr. Harrison's estimate of the number of users is higher than many others.

Texas Instruments announced late Friday that because of continuing heavy losses, it was ceasing the manufacture and sale of its 99/4A home computer. But it said it would continue to advertise the 99/4A and slash its price to clear inventory.

The company reported that it had lost $110.8 million in the third quarter, following a loss of $119.2 million in the second quarter. It also said it took a $330 million write-off against earnings to cover losses and withdrawal

from the home computer business. That followed a second-quarter pretax loss of $183 million on home computers.

Texas Instruments is not the first and is not likely to be the last company to get out of the highly volatile home and office computer business.

The Osborne Computer Corporation, which made somewhat more expensive machines than Texas Instruments, declared bankruptcy last month. Many other smaller companies are expected to fall by the way-

side and even some larger companies might pull out of the business, which is plagued by severe price cutting and rapidly changing technology that can make a product obsolete overnight.

Buying a home or office computer is thus becoming a risky task for consumers. Analysts say the net result of both the Texas Instrument pullout and the Osborne bankruptcy is that consumers will either defer purchases of computers until the market

Texas Instruments Stumbles ...

Texas Instruments' net income or loss in millions of dollars

... Because of Problems With Its Home Computer

Texas Instruments' 1982 lines of business based on percentage of revenues

The New York Times / Oct. 31, 1983

Texas Instruments' Pullout

settles down or will stick with big companies such as the International Business Machines Corporation and Apple Computer Inc.

Some think that Texas Instruments' abandonment of the market, despite repeated statements to the contrary, will also discourage people from buying its more expensive office personal computer, the Professional Computer, which the company is continuing to manufacture.

Indeed, analysts say the pullout leaves the market even more wide open for I.B.M., which is expected to introduce its home computer, the PC Jr., tomorrow. The machine, with a starting price of about $800, is expected to bring some stability to the market. Apple is expected to counter by dropping the price of its Apple IIe into the same range.

Texas Instruments, Commodore International Ltd. and the Atari unit of Warners Communications have been battling at the low end of the market, with computers selling for $200 or less. Both Texas Instruments and Atari have been plagued by heavy losses. Commodore, which has emerged the victor for now, also seems to be hurting, with product reliability problems and product shortages. The PC Jr. and Coleco's new Adam will move the market toward more expensive and more powerful machines.

For Texas Instruments' customers, the future is not clear. The company has said little about how customers are to be supported in the future. Future Computing Inc., a market research company in Richardson, Tex., estimates that between 1 million and 1.5 million 99/4A computers have been sold, making the machine the second most widely owned machine after the Commodore VIC-20 and slightly ahead of the Apple II line.

Texas Instruments did say it would continue to provide service for the computer, meaning owners can send broken computers to the company's service centers for repairs. It is not clear how long that will continue, but it should be for at least a year, since the company is selling its computers today with a one-year warranty.

Getting New Software a Problem

It is likely that it will be more and more difficult to get new software or new peripherals, which expand the machine's capabilities. How seriously this affects consumers depends on how they use the machine.

"If you bought it for $99 and use it to give your kids experience on computers, it will be fine," said C. David Seuss, president of Spinnaker Software, a leading manufacturer of home computer programs. "If you had dreams of doing your accounting or word processing on it, you're in trouble."

Particularly hurt could be the many elementary schools that bought Texas Instruments computers and will now find it difficult to obtain more of them as their needs grow. The computers were popular for school use because they were the first machines to be able to use LOGO, a programming language particularly suitable for use by children.

Schools with some Texas Instrument computers could start buying different brands, but that is more difficult because new software has to be purchased and teachers trained in the use of a second machine.

The bulk of Texas Instruments programs, which come on plug-in cartridges, cannot be used on other machines. Programs on disks can be transfered to other machines, but only with great difficulty because the language in which Texas Instrument programs are written is not the same as that for other computers, so some translation is needed.

Disk drives and other peripheral equipment are likely to be extremely scarce since Texas Instruments is going to stop manufacturing them. While there is an oversupply of the 99/4A computer, disk drives are already in short supply and prices on them might rise. This could be a problem for many users who bought the basic computer first and discover in the future that they need a disk drive to store data.

As for software, a spokesman said the company would continue to supply some. But it seems clear that while existing software might be sold, new software — such as the latest video games and educational pro-grams — will not be made available unless a software company wants to undertake that production and marketing task on its own.

Some analysts think that software companies will find it attractive to try to sell software to the large user population. "You can't ignore a million and a half people," said Charles W. LaFara, a large mail-order distributor of the 99/4A and related products. "With that large an installed base, it's not just going to die out overnight."

But software company officials disagreed and said they have no intentions of continuing to provide new software for the machine.

"We won't be supporting them simply because retailers don't stock software for hardware they don't carry," said Douglas Carlston, president of Broderbund Software. He said he had already talked to several retailers and "there isn't any interest at all in T.I. software." The result, Mr. Carlston said, is that "there is a huge base out there, but we can't find any way to get to them."

Policy Exacerbates Problem

The software problem is exacerbated by the company's longstanding policy of marketing virtually all software for its computer by itself, so that there are few companies already in the business of supplying software for the 99/4A. Most computer companies allow independent software companies to market software for their machines.

It is now considered likely that Texas Instruments will allow independent software companies to make and market software for its machine without threatening them with copyright infringement suits. However, software officials say it is too late.

Texas Instruments has made a series of missteps, and indeed, there are few tears being shed in the industry now that the company is leaving the home computer business.

Texas Instruments entered the home computer market in 1979 with a machine selling for more than $1,100 that was a failure. It was only late last year, when price wars and less expensive parts brought the price down to $200, that sales started to soar. Texas Instruments was an eager participant in the price wars, believing that a low price gained market share and that the higher volume that resulted yielded a profit.

However, the company started losing money because prices were too low, while Commodore International, its chief rival, could continue to produce its VIC-20 at the same low price for a profit.

When the big loss was announced last quarter, Texas Instruments announced it would stay in the business. William J. Turner, the head of consumer operations, resigned in July and was replaced in late August by Peter A. Field, a general manager of Procter & Gamble's coffee division. The company also cut the price of expansion devices that attach to the computer, and sales of those devices grew rapidly.

But the efforts did not work. On Sept. 20, Mark Shepherd Jr., chairman of Texas Instruments, again said the company would remain in the home computer business, but added that "success is by no means certain" and that "in the longer term, this business will have to pull its weight and prove itself a profit maker."

Apparently, mounting losses convinced the company that the home computer business would never pull its weight.

THE SIMPLEST EASIEST KIND OF DATABASE:
Using the computer to search the Lima library
disk listings for specific software
by Charles Good
Lima Ohio User Group

Several months ago at one of the Lima group's regular meetings, a member asked me where he could find Multiplan templates in the group's software library. Since I didn't know exactly, it was necessary to search printed directories and the commented listings of all of the 800+ disks in the library to find them all . I decided there had to be an easier way. After all, commented listings of all disks in our library, and the disk directories, are all in DV80 text files. Surely the computer could search these text files and find all references to the word Multiplan. Why not use Funnelweb's Disk Review in I(nspect) a library listing file and search that file or an entire disk of library listing files for the string "Multiplan"? Unfortunately it wasn't as easy as that.

Over the years, as I have been adding disks to the group's library I have been adding DSKU comments to the disks in both upper and lower case. A disk with Multiplan stuff may have a comment such as "All these files are Multiplan templates." Such commented listings look good and are easy to read when printed on paper, but it is hard for the computer to find all Multiplan references in such text. That is because sometimes I spelled it "MULTIPLAN", and sometimes "Multiplan". The 99/4A disk operating system doesn't know that these are both the same. Another example would be Ms Pacman vs MS PACMAN. An IBM system using MS-DOS would recognize both of these as the same. MS-DOS is not case sensitive. 99/4A DOS is case sensitive. What I should have done all along is USE ONLY UPPER CASE in our library listing text files. I will do this in the future.

I wrote the XB program below to convert existing Lima library listing files into all upper case. Put as many of these all upper case files as you can on a disk or ramdisk. Using Funnelweb's Disk Review bring up a disk directory, press I, select DISK SEARCH, choose ASCII, and then type an upper case key word or text string you want to look for. The computer will search THE ENTIRE DISK for this string and display each sector where the string is found. Use CTRL/N or CTRL/B to page sector display foreward or backwards until you see the name or number of the disk that contains your software.

Members of the Lima UG can request these ALL UPPER CASE DV80 library listings by sending the equivalent 12 DSSD disks and a paid return mailer to the group's mailing address.

This sort of text file data base has many uses. For example, if you have a large collection of music CDs tapes and phonograph records you may have trouble trying to find one particular song on all this media. Just take any TI Writer-like word processor, such as Funnelweb, and use all upper case to enter each tape or CD titile, artist, and all the songs. Use any format you want such as putting all the information for one CD/tape in a separate paragraph. Save these data files to disk as ordinary text files. When you want to find all the references to a particular song use F(ind) S(tring) from within the word processor to search a single text file, or I(nspect) from within Funnelweb's Disk Review to search a whole disk of files. It is easy and fast since the searches are at assembly language speed.

```
50 REM SAVE DSK6.UPPERCASE
60 REM Converts all LOWER CASE of DV80 file to
UPPER CASE.
70 REM Resulting ALL UPPER CASE text can easily be
80 REM searched for text strings by sector editors.
90 ON ERROR 100
100 CALL CLEAR
110 DISPLAY AT(3,2):"CONVERT DV80 TO UPPER CASE"
120 INPUT "Enter OUTPUT FILE path ":OUTPUTFILE$
130 INPUT "Enter INPUT FILE path ":INPUTFILE$
140 OPEN #1:INPUTFILE$,INPUT
150 OPEN #2:OUTPUTFILE$,APPEND
160 LINPUT #1:TEXT$
170 PRINT TEXT$ :: PRINT
180 FOR T=1 TO LEN(TEXT$)
190 A=ASC(SEG$(TEXT$,T,1)):: IF A>96 THEN A=A-32
200 B$=B$&CHR$(A)
210 NEXT T
220 PRINT #2:B$ :: B$=""
240 IF EOF(1)THEN 260
250 GOTO 160
260 CLOSE #1
270 CLOSE #2
280 GOTO 100
```

DONE

TRIS or Tetris?
By: Andy Frueh
Lima Ohio User Group

Author's note: This article compares a commercial and Fairware version of the tetomino (Tetris) games that have been on the PC best-sellers list for quite a while. The opinions expressed in this review are not necessarily the views of the Lima User Group, or of the editor of this newsletter.

Everyone knows that some pretty good stuff comes from ASGARD software, right? Well, maybe for once there is a better way to get software. There is a new tetris game out by the very good author Alexander Hulpke (probably best known for his graphics program work). The author asks a mere $10.

I know very little about the ASGARD version called IRIS. All I've seen is the MICROpendium review and a picture of the game screen. This is available on module only for $25. It just seems a bit pricey compared to a $10 version.

This Fairware version called Tetris is 4 stars. It opens with a "traditional" Fairware screen (pay if you like it, address, asking fee, ect.) and asks you to press a key. After you do so, you are greeted by a spectacular color display of a Russian-style building, the games name, "choose a level" prompt, and it starts playing "Scarborough Fair". The music may get on your nerves after hours of play, but that's what the volume control on a TV or monitor is FOR isn't it?

Also, the Fairware version constantly displays the necessary keypresses for playing. Very handy. I believe both version display your score and let you see and change the next piece to fall, if desired. The Fairware version shows a graph of how many of a particular color has fell. Probably useless info.

So basically, I love the Fairware version of Tetris. Hopefully, I can send the author the $10 he's asking (VERY reasonable for such a good game). I hope Mr. Hupke decides to write more game software.

DONE

A Matter of Memory
By: Andy Frueh, Lima UG

The following is a refresher dealing with one of the basic components of the computer, its memory. Memory is used to store programs, which are instructions and useful information needed to get a particular job done. The ammount of memory your computer has is measured in bytes. Each letter or number occupies on byte of memory. It is impractical to measure computer memory in plain bytes, since there are thousands required. For that reason, we measure it in one-thousand, or one K, blocks. 1K is equal to 1024 bytes, so a 32K computer would have 32768 bytes of RAM.

The TI uses three main types of memory. These are RAM, ROM, and GROM. ROM means Read Only Memory. As its name implies, it can only be read from. No information can be written to this memory (such as a program) and stored there. The factory places instructions in this memory, where it remains forever. GROM is similar to ROM. Graphics Read Only Memory is more or less a TI invention. There are vague differences between the two, but not enough for me to go into detail.

RAM means Random Access Memory. You can write to it and read to it as often as necessary while using the computer. It is easily changed and thus needed for programming.

There are two types of RAM. One is called "static". It is very stable, and more expensive. Once an instruction is written to it, it will remain in memory until changed or power is shut off.

The TI uses dynamic RAM, as do most other computers. The computer must constantly re-read then re-write what's in the memory. This means the machine has an extra step and runs slower as a consequence.

DONE

Mini-Review of WAR ZONE
By: Andy Frueh, Lima UG

This one is one of Comprodine's older games. It was written in 1989 by Quinton Tormanen. The object is simple. Shoot before you get shot. It is similar to many of the jet pilot games. The graphics are above average, although the graphics of the terrain below are unchanging. I could've used an ocassionaly tree or something. Instead, every so many points, the color of the terrain changes to represent trees, a desert, or a swamp.

When you finish a certain number of levels, you get to take on a "base." The base is really just a mass of enemy air and land vehicles at the top of the screen. Trying to stop you in this game are missile launching tanks and transports (the ground vehicles), and three types of airplane. Latter in the game, everything is constantly firing on you.

The game doesn't have enough changing sequences to hold a players attention. True, the graphics are nice, but there needs to be something along the lines of changing backgrounds, maybe a different, large enemy to take on in place of the "base", and maybe some background music. It's playability is a weak point.

For $10 you get a decent game. It may not hold your attention, but it is the best game of its kind I have seen. Similar games available for the TI are TI-Invaders, Galaxian, Plaga, Linkage, and Espial.

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