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NEWS

North Texas PC Users Group

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North Texas PC NEWS

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Deadline:

All advertising and other material for publication in North Texas PC NEWS must be received by the NEWS staff by the 15th of the month. See copy deadline below.

Articles:

We would like to get more articles for publication in North Texas PC NEWS. Article submission is preferred via the Group Bulletin Board (to (M)ail, John Pribyl), or via Startext (to Mail Code 51563), or on disk (360K or 1.2M, 5 1/4 floppy.). Prepare the material in ASCII format, unjustified. If you send a disk, please include a printed copy of the article to assure accuracy. If sending to the User Group Bulletin Board, use (M)ail mode, to John Pribyl. Include special formatting instructions, if any, with the article or in a separate (M)ail transmission.

Please do not indent, right-justify, or otherwise code the copy. If column alignment is critical, send two copies, one formatted, the other unformatted. If sending a disk, send along a hard copy that has been printed in the right format, with written instructions.

Double spaced, typewritten copy is acceptable if you do not own a modem or cannot put the material on a floppy disk. This copy must be received at least two weeks before the deadline to allow time for keying.

Send all material to the Editor at the address shown above.

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DEADLINE
Copy deadline for October NT PC NEWS:
Thursday, September 15th.

Meeting Dates:

September Meeting - 2nd Sat. (10th)
October Meeting - 3rd Sat. (15th)
November Meeting - 3rd Sat. (tentative)

Editors Notes...

> **dead-line** (ded'lin'), n. 1. the latest time for finishing something, as copy for a publication. 2. a line or limit that must not be passed.

The above is reprinted here as a friendly reminder for those who have forgotten the definition.

John

Special Presentation

A demonstration of an 80386-based APL will be made Tuesday, October 11, 1988 at 7:30 PM in room 7012 at INFOMART . Mr. James Wheeler, an APL architect from STSC's headquarters in Rockville, Maryland, will make the demonstration. The APL is STSC's APL*PLUS II, and has been especially written to use the capabilities of the 80386. APL*PLUS II is a complete second-generation APL with nested arrays and generalized operators. Concurrent editing sessions of functions, data in RAM and DOS file data are permitted. Real workspaces of up to 15 MB are supported, as are VDI graphics and STSC's well-known windowing package.

The presentation is sponsored by the SouthWest APL Users Group and STSC, Inc. and is free and open to the public.

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September 10 — John Ogle & Timothy Carmichael

9:00 AM to 11:00 AM

AUDITORIUM

Dell Computer Corp. and Tandy Corp.

9:00 Presentation of 1988 Computer Products – Texas Made

10:00 Panel Discussion:
Texas Made Computers of Next Year and the Future

11:00 AM to 11:30 AM

AUDITORIUM

NTPCUG Business Meeting

Take an active part! Attend the business meeting.

Prez Sez...

A Loss, September's Hardware Excitement, Two Meetings and Thanks

This month's column starts off with a significant Club loss. Joe Brophy, NTPCUG Treasurer, resigned his post in August. Although Joe has been less "visible" to Club members than most of the other officers, his role has been instrumental in terms of Club growth and functioning.

In his letter of resignation, Joe stated that he had completed his major goal for the Club, completion of the 501(c)(3) application that facilitated our becoming a not- for-profit corporation. Joe did much more than simply completing some paper work. He deftly guided us through the labyrinthine IRS regulations and procedures, negotiated with officials and carried us through the necessary steps to achieve this goal. All this involved countless hours of Joe's time over the last three years.

Joe regretted having to make the decision to step down from the Treasurer's role. But he felt that business and professional obligations (Joe sits on a number of local, state and national Accounting organizations) in addition to teaching at local colleges, would make it impossible for him to continue at such an active level in Club business.

NTPCUG Board meetings won't be the same without his advise, comment and wry sense of humor.

Super Hardware, Texas Made!

NTPCUG News readers may have wondered what that headline has meant for the last several issues. September's Meeting will feature equipment displays, demonstrations and discussions about PC's we might expect to see in the next year or two from two of Texas' leading PC manufacturers – Tandy and Dell Computing.

Both Tandy and Dell Computing have made significant product advancements in the last several months and will be on hand to discuss their latest and hottest hardware.

Tandy/Radio Shack

Although Tandy Corporation is distancing themselves from the Radio Shack label (and image), they can't escape the fact that they were responsible for much of the early development and growth of affordable PC's (the TRS-80's) to gain public acceptance.

Tandy is first (and only at the time of this writing) PC maker to announce and deliver a Micro Channel Architecture (MCA) 80386 PC outside the IBM camp. Tandy's 5000 series joins newly redefined 3000 and extremely popular 1000 series of PC's.

Tandy acquired Grid Systems earlier this year and may display some of their state of the art laptop PC's, including an 80386-based, battery operated screamer, as well as the larger Tandy desk-top units.

Dell Computing/PC's Limited

Dell Computing (PC's Limited) of Austin, TX, has been one of the "Fairy-Tale" success stories in the PC industry. Dell's story features a young college stu-

dent who went from assembling PC's from off-shore components in a dorm room at UT Austin to a mail-order house and finally becoming one of the most successful PC makers in America .

Like Tandy, Dell Computing produces a full line of PC's from 8088-based PC's to 80386 power machines. Dell was one of the earliest 80286 makers to market their PC line nationally at popular (affordable) prices.

Dell surprized the industry a few months ago when they announced the 220 – a 20MHz 80286, small footprint machine – that Dell reports is very close to 80386 performance at significantly reduced cost.

It's not COMDEX, but...

Anyone planning to buy a new PC or considering upgrading their existing system would do well to attend the September 10 meeting. This is one of the very few opportunities to see the hardware and talk with the people who designed and made it at the same time.

Both Tandy and Dell promise their people will be able to answer technical hardware and design questions about their products.

Visits to foreign climes

Well, Seattle really isn't "foreign." Again, daytime temperatures in the 80's when Dallas was bouncing above 100 degrees did come as a pleasant change. Microsoft hosted the Presidents and SIG Coordinators of the 20 largest PC users groups in the country to an early August conference featuring new Microsoft software and their plans for increased user group support.

Since Both Phil Chamberlain and I signed some ferocious non- disclosure agreements, I'm not that sure what I can say here about anything we saw or heard. Phil reported on the trip to members at the August meeting and there's not too much I can (safely) add, except... I left Seattle with a new respect for Microsoft Word and Microsoft Works.

One disquieting note that ends with a compliment. Phil and I must have seen in excess of 100 million (maybe that's a slight exaggeration) overhead projections. We saw so many that we and the other PC user group representatives became dizzy with information overload. This was true corporate americana at its most excessive.

Microsoft wasn't being pompous or hostile. They were trying to share a great amount of information in a very limited time span. When they became aware of the difficulty the planned format was creating, they took an atypical corporate turn and relaxed, letting the meeting settle down to a very productive Q & A group discussion format.

Thanks, Microsoft. The change in procedure made the meeting very worthwhile. Club members will also reap some of the benefits over the next several months.

My excuse for missing the August meeting

August 13, instead of being at INFOMART, I was presenting a paper at the 96th Annual Convention of the American Psychological Association in Atlanta, GA. Atlanta was a considerable climactic change from Seattle, to say the least. The paper was "Outpatient Treatment Programming for PTSD: Abreactive and Supportive Considerations," and concerns what I do in real life as a clinical psychologist with the VA Medical Center at Dallas.

There are two points here. First, I didn't show a single overhead projection or slide (see Microsoft, above). Second was the impact of the Exhibitor Area at the meeting.

Usually, this area is filled with publishers of college textbooks and clinical tomes with a sprinkling of laboratory equipment and assorted biofeedback equipment. This year was different. It reminded Connie and I of COMDEX – every other display booth featured one or more PC's in a variety of roles from physiological data acquisition and recording, statistical analysis, to monitoring and control of some highly exotic biofeedback gear. APA's PsychInfo group was showing CD ROM's featuring 12 years of psychological abstracts on a single CD available to libraries and research organizations.

It also reminded us we were missing the August Club meeting.

Special thanks to some nice people

When the request for assistance in helping David Allen obtain a computer first came to light at the June Meeting, Kent Cobb, David McGehee and several other members considered building a PC from components we had available for the young man.

I contacted Randy Van De Loo at Tri-Logic Systems in Grand Prairie, TX, to see if they had a trade-in hard drive we could obtain at reasonable cost for the project. Tri-Logic specializes in repairing and refurbishing hard drives and Randy Van De Loo moderates a Hard-Drive Conference on a national BBS network.

Randy wasn't sure, but said he'd probably be able to find something. He actually rebuilt and converted a 5M drive to 10M PC/XT specifications and donated it to the project.

With Sun's donation of the full-house Compaq, the drive wasn't needed and will be returned to Tri-Logic Systems. I want to say "Thanks" to Randy anyway. He/they responded to our request very quickly and without question.

Reagan....

A Tale With a Happy Ending -- SUN, NTPCUG Help Young Stephenville Student Get A Computer

David McGehee

David Allen is an ambitious young man who hopes to be Valedictorian of his Stephenville High School graduating class next year. He has a few problems in his way, but he thinks he'll achieve his goal.

NTPCUG members, non-members hearing about his problems at the June 11, 1988, Meeting and Sun Exploration & Production Company helped solve at least one of David's problems in August.

Already an Honors student at Stephenville High School, David was diagnosed as having a severe form of either Juvenile or Rheumatoid Arthritis and has been restricted to a wheel chair for some time. He's also trying to keep up with his honors classes while receiving regular medical checkups and physical therapy that take him out of class.

According to Norma Battles, M.D., David's physician, the disease has caused reduced use of his hands in normal activities such as manipulating a pen or pencil. Dr. Battles felt that using a computer keyboard would be a good form of physical therapy to increase mobility of the joints.

David Allen, his medical condition, and his need for a computer system first came to the attention of the members of the North Texas PC Users Group via a message on the Club's Bulletin Board System from Clint Sterry, David's brother-in-law. The June 10th, 11th and 19th messages described his condition and requested help in obtaining a computer system for David.

Dave Freeman, Sun Oil Exploration and Production Company, presents donated computer system and software to David Allen.

Kent Cobb, Advanced Programmer's SIG Leader, read the June 10th message to Club members at the June 11th NTPCUG business meeting and volunteered to coordinate efforts on David's behalf to get a PC.

Kent was joined by David McGehee, NTPCUG Secretary, and Pete Testa, Communications SIG Leader, forming an ad hoc committee to spearhead the drive to get David Allen a computer.

Several members had come forward after the June meeting to offer various components that might be used to assemble a system for the young man. Over the next two months, a number of similar offers were received and Kent, David and Pete's original thought was to build a PC "from scratch" as a result of offered monitors, disk drives, motherboards, etc. A number of members, and non-members who attended the meeting, also offered software.

Things looked pretty good. Enough parts were volunteered to assemble a complete system equivalent to a turbo XT. There was some concern about possible reliability problems in a system of this sort, particularly in light of David's problems with mobility.

Geosciences Computer Services of Sun Exploration and Production Company, stepped in and eliminated the computer integration effort through donation of a complete system. Marie McGehee, wife of NTPCUG Secretary David McGehee, contacted Dave Freeman at Geosciences Computer Services and described David Allen's problem and the Clubs efforts to help him.

Sun E & P graciously offered a complete system. Sun not only provided a Compaq Portable from service, they had it enhanced with a memory board to bring the memory up to 640k bytes, a 30M shock-resistant hard drive, and a 720k 3.5 inch floppy drive. Sun also donated a variety of software including Compaq DOS 3.31, "Remember", "Norton Utilities", and Borland "Sidekick."

Members of the North Texas PC Users Group then added an additional I/O board, installed the remaining software, and otherwise prepared the machine for David's use. ►

Final presentation of the Compaq PC was made at the end of the Club's regular business meeting Saturday, August 13, attended by Sun E & P officials, David Allen and his family, NTPCUG's ad hoc committee and NTPCUG officers.

The following is a brief listing of the individuals who donated components, software and assistance to the system project during the Club's effort.

North Texas PC Users Group software donations included:

Word Perfect 5.0: courtesy of Word Perfect, Inc.
Flight Simulator: courtesy of Microsoft
Quick Basic: courtesy of Kevin Curtis
GASP: courtesy of Kent Cobb
MIX C: courtesy of Andrew Chalk

Other hardware donations included:

Printer: courtesy of Kent Cobb
I/O board: courtesy of Brian Dixon (not an NTPCUG member)
Pagemate Easel: courtesy of Don Hartman of Eagle Marketing

Time was donated by many people both at Sun and within the NTPCUG organization:

Sun: Dave Freeman, Richard Kaniss, and others.

NTPCUG: Kent Cobb - project coordination, David McGehee - system integration & Sun interface, Pete Testa - hardware installation & test, Stuart Yarus - Infomart coordination, Jim Hoisington, Clint Sterry, Joe Brophy, Andrew Chalk, and other unsung heros.

There were also a number of items that were offered which could not be used, as it turned out. They were:

Monitor: courtesy of Ed Conway
Monitor & video card: courtesy of Patrick W. Flatt
Modem: courtesy of Jeff Corder (not an NTPCUG member)
Software: courtesy of David Nall
Print Shop: courtesy of Andrine Stricherz

David

North Texas PC Users Group

Personal Users (Beginners) 16-Class Revolving Schedule

Schedule	Class	Class Title/Description
Jan 89	1.0	Start Up
	2.0	Diskette Sizes & Formatting Each
	3.0	Copying & Backing Up Files
	4.0	Hardware
Sep 88	5.0	Fixed Disk Directories, Batch Files & Paths
	6.0	DOS Menu Systems on Fixed Disk
	7.0	Installation & Setup of LOTUS 1-2-3
	8.0	Running BASIC Programs
Oct 88	9.0	Writing Your Own BASIC Programs
	10.0	NTPCUG Disk of the Month Library
	11.0	PC Graphic Modes
	12.0	Bulletin Boards & Archive Programs
Nov 88	13.0	Printer Setup
	14.0	Writing LOTUS Macros
	15.0	Major Categories of Software Applications Available Today
	16.0	PCs to the end of the 20th and into the 21st Century

Four Classes are offered each month (at 9:00, 10:00, 12:00 noon, and 1:00 pm). Across four months all 16 of the classes are completed, and the cycle starts all over again. Each class is independent of the others, thereby allowing people to begin attending classes any time their schedule allows. The classes are free and are open to all beginners, novices, new PC owners, soon-to-be owners and personal (vs. professional) users. Come join us as we cover the fundamentals!

Bob Presley and Richard Terreo, Instructors

Processor Wars: Intel v. NEC

Part 1: The Microprogramming Battlefield

Thomas J. Cook and Alan Lintel

This two-part article explores the lawsuit Intel has filed against NEC for infringement of its processor design. The crux of the suit is NEC's V-series chips which out-Intel the Intel chips (the 8088 and 8086) that they emulate. Since the NEC V-series are pin-compatible with their Intel counterparts, Intel would like to see them shut down. More importantly, Intel would like to slow down competition in the 386 arena, where Intel enjoys a very big profit margin.

Many of the charges in this suit concern the licensing of technology, and the extent to which a license covers technology. In this case, the microprogrammed internals of chip design are the technology of contention. Intel also has patents which cover certain aspects of their microprocessors, but these patents were licensed to NEC and are, therefore, not part of the suit.

The first part of this article covers the general topic of microprogramming. Alas, the discussion must remain general because Intel will not provide any details concerning the microprogramming of their chips. Part 2 of the article will explore all the legal issues of the suit.

What is microprogramming, and how does it differ from "regular" programming? If you write an assembler program for a microprocessor, are you writing a microprogram?

To answer these questions, we first have to explain that most microprocessor chips are really two processors in one chip. The processor the programmer plays with is really just an emulation program written on the other (unseen) processor. Assembly language programs are merely input data to this internal program.

For those of you not familiar with assembly language, it is the lowest level at which a programmer can communicate with a microprocessor. The microprocessor designer decides which commands will be available to the programmer, so command sets vary greatly between different types of chips.

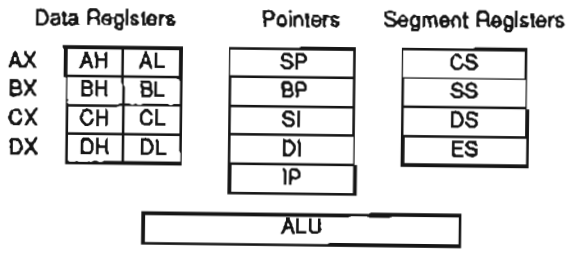

Figure 1.

To write an assembly language program, the programmer must be familiar with the internal workings of the chip. A block diagram of the 8086 is shown in Figure 1.

The data registers (AX-DX) are temporary storage locations for 16 bits of information, and are divided into upper and lower bytes (e.g. AH, AL). These registers serve multiple purposes. First, they can be used as the source for data in an operation, such as an addition, or as the destination for the result of an operation. Second, they may have a special purpose in certain instructions. For example, BX is used as a base register in some address calculations.

The pointer registers are used for addressing purposes. A complete discussion is beyond the scope of this article; suffice it to say they act as bookmarks to help the processor keep track of key memory locations. The segment registers assist the pointer registers.

The ALU (Arithmatic Logic unit) is "where the action is". Data is manipulated by the ALU through logical opgrations. The ALU performs arithmetic operations as simple as a shift and as complex as a multiplication.

Assembly language provides a programmer with a high degree of control over the inner workings of the microprocessor. Nevertheless, each assembly language instruction requires the microprocessor to do a number of operations. Even an addition is a fairly complicated procedure within the microprocessor.

Microprogramming refers to the hardware-level programming of the unseen internal processor of a chip. It is generally not accessible to normal programmers.

A microprogrammed chip has several unique characteristics:

o it contains a full "internal machine" on the chip;

o the internal machine has its own registers, word size, and instruction set;

o the instructions of the internal machine can each cause multiple actions within the processor.

It sounds complicated—why implement a computer instruction set by programming the instructions using a whole other machine and language? The answer is flexibility.

By not laying down actual "wires" (at the chip level) to implement an instruction, the chip designers can change the instruction set by simply modifying the microcode. Fixing a poorly implemented instruction is a matter of changing microcode, not wires. Ad-

►

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ding a new instruction is as easy as adding a subroutine (of microcode) to implement the instruction. If IBM wants a proprietary 80386 with "clone killer" instructions, that is mostly a software problem for Intel.

The diagram in Figure 2. roughly models a microprogrammed machine.

When your program contains an instruction like "MOV AX,BX", that instruction is not directly executed. Instead, a so-called "micro CPU" uses the bits comprising the instruction as an index into an on-chip ROM library of micro routines. Those routines are the microcode instructions that perform the desired "high-level" operation.

Microcode instructions are usually very different from assembly language, but that is not surprising since they are for a different processor. The micro CPU has its own set of registers (the "micro registers") as well as use of the user-accessible "user registers" like AX and BX. It is the microcode's responsibility to coordinate all the different hardware units (like adder, shifter, comparator, etc.) in some cohesive way to implement the incoming high- level instructions.

Micro machines can be horizontal or vertical in nature. A horizontal micro instruction is capable of invoking multiple phased sets of micro operations (each bit in the instruction can represent a separate operation). A vertical micro instruction invokes a single operation. A horizontal machine requires a very wide word (for the bit-per-operation structure); vertical machines require a narrow word, but decoding the operation is more complex (a given bit can have multiple conditional meanings).

Most real micro machines are a compromise of horizontal and vertical because there are too many micro operations to fit into a single word (the word would have to be hundreds of bits wide). As it is, 40-60+ bits is not uncommon for the micro instruction width.

Most "high-level" languages (like assembly) tend to be mostly vertical because mere mortals can handle no more

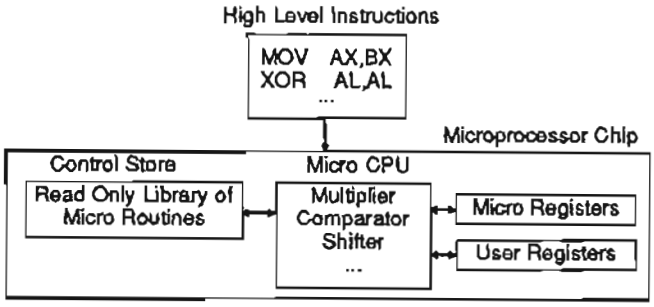

Figure 2.

complexity than that. The new RISC technology is even more vertical implying that software folks can no longer do anything horizontal (like walk and chew gum simultaneously).

Why use a hard-to-program horizontal machine structure? Partly because electrical engineers (EE's), not software people, designed it (Ed note: Co-author Alan "EE" Lintel is not completely in agreement that reason). Other reasons are our old buddies speed and space. The shortfall— programming difficulty—is considered a one-time pain (and that is not the EE's problem anyway).

It is clear that if a single horizontal instruction can invoke multiple operations, then very few words of code would be needed to implement a high-level assembly instruction. Few words minimizes micro instruction fetches as well as minimizing execution time.

OK, so it is fast, but how can a giant word size save space? It can by minimizing "program control" instructions (JUMPs and COMPAREs) which characterize vertical code.

Why are Intel and NEC at each others throats? Well, it seems that Intel licensed NEC to make 8088 and 8086 processors. NEC used the license to bring out its own super-clone of the processors (the V20 and V30). Both companies agree that NEC has a hardware license, but the companies disagree on whether the license covers the microcode—or if it even has to.

Here are some questions to ponder while you wait for Part 2 of this article. Clearly, microcode is very closely related to the hardware. Does that make it part of the hardware, or is it simply software that programs the hardware? Is the microcode conceptually like ROM BIOS code? Does the hardware design force a particular microcode design?

Is the suit being taken seriously? You bet. Intel has not licensed the 80386, leaving the industry with no second source, and making Intel both a bottleneck and monopoly. A new Japanese company, VM Technologies, has brought out a new class of processor which uses a completely different form of internal micro machine "in an effort to circumvent the microcode licensing problems currently being experienced by NEC." (This micro machine is so flexible it can emulate either an Intel 80386 or a Motorola 68020.) Yet another new company, Nexgen (based in California), is introducing an 80386 compatible chip set which is claimed to be compatible with the 80386 but "will have its own microcode." Chips and Technology is rumored to be working on an 80386 clone using "clean room" conditions (that is, using only published input/output descriptions of the chip – no reverse engineering) to avoid legal hassles.

Stay tuned....

Tom Cook has a doctorate in Computer Science. He taught at Virginia Polytechnic Institute, worked in Tektronix research labs, and consulted extensively. He is President of Astort, a company specializing in PC software for lending institutions. (214) 341-1890

Alan Lintel is an attorney at Baker, Mills & Glast in Dallas.

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ON COMPLEXITY

No. 19 in a Series

by Jim Hoisington

I have been interested in optical storage devices for several years and thought this would be a good time to explain what is currently happening in the market.

The popular products today are based on the same technology as the compact disk that have music recorded on them. As is the custom in the computer market, the term compact disk has been shortened to CD.

These disks are made of aluminum and are surrounded by mylar. They are 4.75-inches in diameter and the disk drives can fit into the same slot in a computer as a 5.25 inch diskette drive.

There a currently three types of CD disks: CD-ROM, WORM and Erasable. Each type performs a different function and serves a different market.

The CD-ROM disks are read-only devices. They cannot be erased nor can the information on the disks be changed. A typical CD-ROM can hold between 550 and 640 megabytes of data. The primary use for CD-ROM is publishing. They can contain data or back issues of publication or even graphics. They are made by a special machine which stamps them out just like the ones with music. The cost per disk is between $5 and $10 and the cost for a computer drive is between $600 and $1,000.

The term WORM stands for Write Once - Read Many. While these disks have come in many sizes in the past, they are standardizing on 5.25" which contains about 400 megabytes of information. Where CD-ROM's are stamped out in volume by a special machine, the WORM disks are written directly by the computer. However, once the computer writes the information, it cannot be erased. The primary use for this technology is archiving information. They can by used by banks to contain account balances and by hospitals to contain medical records. The current cost per disk is between $20 and $30 and the cost per drive is between $3,000 and $7,000.

The third category is Erasable. These disks act like a giant floppy disk. Data can be written and then deleted or changed. Tandy recently announced plans to bring out such a product by the end of this year. Several competitors have also promised products within the next year. The only commercially available product available today is made by Sony and costs between $10,000 and $16,000.

There are three reasons which this technology is so interesting. The first is size.

I have been saving some computer publications since I bought my first PC in 1981. These magazines contain programs or code fragments which I assure myself that I am going to need someday. As you might imagine, they take up a lot of storage space. This summer, the folks at Ziff-Davis are going to come out with a CD-ROM that will allow me to throw out three-quarters of those magazines. I'll still have the information but it will be stored on one 4.75" disk which won't be completely full.

The second reason for investing in this technology is life-span. If you have ever worked with 1/2 inch computer tapes, you know that the estimated life span is between 4 and 6 years. And that is if you run the tape through the drive and retension it every six months. Since the CD-ROM and the WORM technology use light to read the data once it is written, it should last a lot longer. Actually, nobody knows how long it will last because they haven't had any failures yet. But the experts say that eventually oxidation on the aluminum foil will make the data unreadable. They are currently guaranteeing that the data will last for 12 years.

The third advantage is that the data on CD-ROM and WORM disks is not changeable. That has legal implications. It can be used to document things. If the same information were on magnetic disks or tapes, there would be no guarantee that it had not been modified.

I am hoping to buy a CD-ROM this fall. There are several databases and the Ziff-Davis publications disk that would sure make my life less complex.

I'll end with a paraphrase of a joke that I heard last week. "My wife told me if I didn't get rid of all those old computer magazines she was going to leave me. Gosh, I'm going to miss that woman!"

Jim

Disk of the Month

by Kathryn A. Crawford

Disk of the Month for September – Tutor 4.4

Tutor 4.4, from Computer Knowledge, is a text file grading program that can be used to build interactive tutorials. The previous version of this program has been very popular with the Beginners SIG because the shareware distribution copy comes with a series of tutorials on computer history, computer hardware, DOS basics, subdirectories, and batch files. The distribution copy is meant simply to demonstrate the capabilities of the program, but it is also useful for drill and review of basic concepts for novice PC users. Registered users of Tutor can acquire the Building Tools package and build their own tutorials.

September is the Back to School Season, and in the spirit of the season the Disk of the Month will be featuring educational software. In addition to Tutor 4.4, we will be offering a number of educational programs for self instruction in history, geography, and math.

Backlog of DOM Disks

It once was very easy to decide what disks we would have for the next meeting: we didn't have that many to release, so we didn't have to make a choice. Now we have a lot more disks to choose from and the process has become more complicated. Club members are contributing disks. Disks are waiting for reviewers. Area Editors are waiting for reviewers to finish the readme files. As of August 15th, I estimated that we had around 53 disks in process. That's not counting the ones where we are still sorting out.

Disks move faster if they are contributed with a readme file. See the DOM conference area on the club Bulletin Board for the format for readme files, and the DOM catalog disks for examples of readme files.

Software Released in August

In addition to the disks announced in the August newsletter -- Pianoman 4.0 (Disk 285), MasDir 3.2e (Disk 286), TURBO-LESSONS 1.01 (Disk 287), and THE EXPERT (Disk 288) -- the following disks were released at the August meeting:

Disk 289. TechnoJocks Turbo Toolkit, 2/88. Utilities for Programming in Turbo Pascal 4.0. Utilities for: windows, menus, user input, string formatting, directory listings, and mouse support.

Disk 290. JADU 1.0, 5/88. Just Another Directory Utility. Unique in that it allows you favorite file utilities to be integrated into the JADU menu.

Disk 291. PK 3.6, 6/88. File Archive Utilities. This is the latest version of the popular file compression programs PKARC and PKXARC. Concerning which, see below...

Disk 292. Buick Dimension Demo. Test Drive the 1988 Buicks.

Fred's Checkbook, which was announced as a possible release, was updated with a new version and is now called Financial Consultant. And has gone back to a reviewer for a new readme.

PK 3.60

Just as soon as the disks are ready to go to Midwest Magnetics for duplication, we can count on finding an update version to one of the disks. This time, not only was there an update to PK 3.60 on the way, but there was also the news that the lawsuit between P-Kware and SEA was settled.

First the update–

According to the usual reliable sources, PK 3.60 "will hang the system in certain situations." An exact description of the certain situations was not forthcoming, but we will have the PK 3.61 update as soon as it is available.

Now about that lawsuit...

SEA (System Enhancement Associates, Inc.) makers of ARC and PKWARE, Inc. and makers of PKARC announced on August 1st the settlement of their lawsuit. Under the agreement, after Jan. 31, 1989 PKware will stop publishing and distributing ARC compatible programs and utilities that process ARC compatible files . How will this effect the PK shareware products on the Bulletin Boards and in the club library? Stay tuned.

Recently released Software Disks

Here are some more extracts from the readme files for the software disks distributed in June & July, 1988.

Disk 281. Amanda's Letter Lotto 1.01, 8/87, by Steve Hudgik, HomeCraft Computer Products, P.O. Box 974 Tualatin, OR 97062.

Amanda's Letter Lotto, Color Wheel Game, and Color Screen Game are simple games for children 18 months and older.

Amanda's Letter Lotto helps to teach children about the alphabet and allows them to learn about computers. There are several games that can be played ranging from simply pushing a key and watching the corresponding letter appear on the screen, to a lotto game in which you need to find five letters the computer has selected at random. ►

The two other games on the disk are for the pre-alphabet set and require a color monitor. The Color Screen game just changes the screen color each time a key is pressed. The Color Wheel game has the player match one of four colors with a displayed color. These games will provide a very young child with something amusing to do on the computer.

These games are written in BASIC and compiled with Microsoft's QuickBasic compiler. The source code is available on this disk.

SYSTEM REQUIREMENTS: IBM PC, XT, AT or compatible with 196K, one disk drive, and DOS 2.0 or later. Graphics NOT required, but a color monitor is needed for the Color Wheel and Color Screen games.

Registration fee for this shareware is a $5.00 contribution made out to Amanda or Zachary Hudgik's college fund.

This disk was donated by NTPCUG member Kathryn Crawford. The readme file was prepared by Kathryn Crawford and edited by Howard Hamilton.

Disk 282. Overview 2.10, 1/88, by James Mathews, Blue Sky Software, P.O. Box 232 Absecon, NJ 08201.

Overview is a hard disk and file maintenance utility for IBM PC/XT/AT, personal System/2 and compatible computers using the PC-DOS and MS-DOS version 2.0 or greater operating systems. This program is shareware ($15). Overview has standard file and disk maintenance functions (copy, rename, erase move, etc.), an excellent directory tree display, and supports 1-4 windows giving up to 4 directories or disks at the same time. All files within a directory and sub-directory can be shown with the show-all command.

Overview is not a memory resident program. It takes 78 K of memory, but will use LIM/EMS memory if available. If a color monitor is used the display colors can be selected by the user. A monochrome monitor works fine. A file view function displays files as ascii text or in hexadecimal dump format. A menu bar stretches across the top of the page. Menus are pull-down and can be easily selected by use of speed keys or the arrow keys. Files are displayed in sorted format and can be easily selected for execution.

This is an excellent program well worth $15.00.

Readme file prepared by Paul A. Van Dreal and edited by Harold (Hal) Horton.

Disk 283. PC-Draft I Release 4.0, 1/88, from Natural Software, 19 South Fifth Street St., Charles, IL 60174, (312)377-7320.

Shareware registration: $45.00 + $5.00 for shipping

PC-Draft I is a high resolution pixel oriented drawing and graphing utility. By using 'pull-down' menus the user can select various drawing forms, fonts, patters, or even create and save their own designs. PC-Draft images can be incorporated into word processors, which allows sending files to the printer in the middle of the word processor document. This is also handy if you want to print several items at a time but do not want to wait on the slow speed of the printer.

System Requirements

–IBM PC, XT, and AT and "true compatible" microcomputers
–At least 256k of memory, the more memory the better. PC-Draft I is memory hungry. As you move to new portions of the drawing, more memory is allocated, 16k per screen.
–MS-DOS or PC-DOS versions 2.0 or later
–An IBM or compatible Color Graphics Display adapter is required, will not work with monochrome displays or foreign display interface boards such as Hercules.
–If you do not own one of the supported printers (or one which is VERY compatibly) you would be better off with another program.

Support for the following printers is available:: IBM Graphic Printer, EPSON FX, HP Laserjet+, Okidata Microline 193 - 293 series, IDS Microprism, C.Itoh 8510 -1500, NEC 8023A/B, and Sony SMI-720.

This version of PC-Draft I, release 4.00 includes several improvements over earlier releases. The code was updated using Turbo Pascal version 4.0. This allowed the following:

–The overlay file: PC-DRAFT.000 is elimnated - this means that the commands respond much faster as the code does not have to be read in from disk. –The overall code size is smaller. –The code executes faster. –Disk space is conserved

This disk was donated by the author, Natural Software. The readme file was prepared by Roy Bales and edited by Kathryn Crawford.

DOM Particulars

The North Texas PC Users Group makes these programs available as a service to the club and its members. We try to test all the programs, but we do not warrant the programs in any way. You must decide if a program is suitable for your use and will run on your system. If you ask, we will tell you what we know about any program, but the final decision to buy and/or use these programs is yours.

DEFECTIVE DISKS: We will gladly and without question exchange an unreadable disk for one of the same program. People returning a disk need to give us a written description of the problem so we can correct it.

DONATION OF SOFTWARE TO THE CLUB: All members of the club are encouraged to contribute copies of public domain software, shareware, and demos to the DOM. For each new disk of software contributed, you may select any disk in the DOM in exchange. The contributions will be reviewed before credit is issued at the next meeting.

PRICE: Members: $2.00 per disk (if the program is on two disks, the price is $4.00). Non-members: $3.00 per disk. 3.5" disks: $3.00 per disk.

MAIL ORDERS: At prevailing prices for the disks, plus $2.00 mailing fee. Mail your orders to: NORTH TEXAS PC USERS GROUP, DOM Mail Order, P.O. Box 780066, Dallas, TX 75378-0066.

CATALOG DISK: The Catalog contains the readme files for the disks with a subject index. Currently the catalog is on two disks and costs $4.00.

MEDIA: DSDD 5.25" formatted 9 sector. 750K 3.5" disks available mail order only.

AVAILABILITY: Disks sold out or not available at the monthly meeting can be obtained through the DOM Mail Order.

DOM VOLUNTEERS: If you would like to work the DOM Table for an hour during the monthly meeting, contact Howard Hamilton via the NTPCUG BB, or Connie Andrews (the Volunteer Coordinator) during the mothly meeting.

DISK CACHE COMPARISON

By John Pellet

The following test times are based on PC Magazine's version 4.10 benchmark tests run on my 10 Mhz, 0 ws AT clone. SmartDrive, PC-Cache, and IBMCache used a 204K cache in extended memory. EMCache (the freebie of the bunch) and Lightning used a 208K EMS cache. SmartDrive and PC-Cache support both EMS and extended memory, with the latter faster. All times are in seconds unless indicated otherwise. On multiple tests, times appeared to vary randomly by about 10%.

Lightning is by the Personal Computer Support Group. SmartDrive is by Microsoft, included with Windows 2.0. PC-Cache is by Central Point Software, included with PC Tools Deluxe. IBMCACHE is included with PS/2 Models 50 or greater. EMCache is by Frank Lozier @ Cleveland State University and is available from several sources of public domain software.

Each cache was run with a variety of commercial software, including Windows, Q&A Write, Quattro, Reflex, GEM, and Fastback Plus with no problems. The Core Disk Performance Test, v. 2.7, and Norton's SI, from the Advanced Utilities, were run. Only Smartdrive routinely showed increased speed for both. Additionally, it increased the backup speed for Fastback Plus by about 10%. I would interpret these results to mean that SmartDrive talks to the hardware at the lowest level.

Operation	No Cache	SmartDrive	PC cache	EMCache	IBMCACHE	Lightning
Low memory required (K)	0.0	17.9	9.2	5.0	14.1	32.2
Average time to read 1000 random sectors (msec)	34.61	54.26	39.00	34.00	37.08	31.74
512 bytes/512 Records						
Sequential file creation	9.83	9.94	9.72	9.50	9.39	9.61
Sequential file writing	17.46	9.67	17.47	17.47	11.10	17.47
Sequential file reading	8.90	1.43	9.85	8.90	2.58	8.90
Random file write	29.00	11.20	26.59	15.10	22.19	17.19
Random file read	21.59	1.38	3.29	1.54	1.81	9.83
Total time for test	86.78	33.62	66.02	52.51	47.01	63.00
4K bytes/64 records						
Sequential file creation	1.60	2.42	2.63	1.59	1.59	1.59
Sequential file writing	1.53	2.20	2.64	1.53	1.54	1.49
Sequential file reading	1.49	0.77	2.52	1.49	1.48	1.48
Random file write	1.59	2.25	2.64	1.97	2.20	1.54
Random file read	1.54	0.99	1.86	0.61	2.20	1.54
Total time for test	7.75	8.63	12.29	7.19	9.01	7.64
Time for small records	86.78	42.25	78.31	59.70	56.08	70.64
16K bytes/16 records						
Sequential file creation	0.93	1.54	2.20	1.16	0.88	0.88
Sequential file writing	0.72	1.26	2.08	1.04	0.71	0.71
Sequential file reading	0.66	0.77	2.04	0.93	0.66	0.66
Random file write	0.72	1.10	1.81	0.94	0.72	0.71
Random file read	0.71	0.16	1.76	0.28	0.66	0.66
Total time for test	3.74	4.83	9.89	4.35	3.63	3.62
32K bytes/8 records						
Sequential file creation	0.66	1.16	1.97	0.94	0.60	0.66
Sequential file writing	0.60	0.99	1.98	0.88	0.61	0.60
Sequential file reading	0.55	0.71	1.87	0.71	0.55	0.55
Random file write	0.66	0.99	1.76	0.82	0.60	0.66
Random file read	0.61	0.11	1.70	0.33	0.50	0.60
Total time for test	3.08	3.96	9.28	3.68	2.86	3.07
Time for large records	6.82	8.79	19.17	8.03	6.49	6.69

Selected SIG Happenings

News and Meeting Notes on Special Interest Groups

(Material for this column should be sent to Phil Chamberlain, SIG Coordinator before the 15th of the month.)

Assembler SIG

As usual, the discussion in the assembler SIG was as structured as the language. One issue that inadvertently touched on assembly language was the choice of a good disassembler. A new product, SOURCER, appears to generate well-documented code and distinguishes code from data under some circumstances. Members noted that the advent of the Intel 80386 poses new problems for disassemblers due to the larger instruction set.

Future meetings of the SIG will blend general discussion and formal presentations. If you have an assembly language project underway and could describe some aspect of it to the group your contribution would be warmly welcomed.

Some possibilities include:

1) 80386 assembly language;
2) Integrating assembler with a high-level language;
3) Device drivers;
4) 80286 protected mode programming;
5) Implementing algorithms in assembler;
6) Graphics;
7) Serial communications;
8) TSRs.

Please let me know if you could discuss some aspect of the above or a topic of your choice.

Andrew Chalk

Lotus SIG

The subject for the August meeting was databases in 1-2-3 and Symphony. The SIG discussed the power of having data in a database format which often makes it easier to generate reports. Pat also presented the results of his survey to assist in determining subjects for future meetings.

Pat is also coordinating reviews of 1-2-3 add-in programs. Some of the programs he is trying to review include DAVE, Oracle for 1-2-3, Silverado, and others. If you are currently using any of these or another add-in and would like to review the add-in for the SIG, please contact Pat Henley.

The subject for the September meeting will be basic macros. Macros were the number one subject mentioned in Pat's survey. The meeting will also demonstrate the Lotus Add-In, Learn, which is available at the Disk-of-the-Month table. If all goes well, there will also be a new disk available next month which includes a tutorial on 1-2-3, and a second tutorial on macros.

The Lotus SIG always takes time to answer questions that 1-2-3 and Symphony users have about the products. If you have a question or would like to learn more about 1-2-3 or

Symphony, join us in September.

Mark Gruner
& Pat Henley

DAC Software SIG

DAC Software has presented some of their new offerings during the last two SIG meetings. In July the group had a presentation on the new DAC Easy Accounting 3.0 release with an explanation of the differences and enhancements from previous releases. In August we had a presentation on the new VCR tutorial for DAC Easy Accounting which was recently released. In our next meeting we look forward to reports of first hand experiences with the new DAC 3.0 software and particularly the new graphics capabilities in the Graph+Mate package.

Of special interest, though, is the planned open house on Saturday, September 24, between 10 am and noon of the new DAC Software Business Support Center which includes a teaching facility and consulting support services. There will be a guided tour by a DAC representative. Come to the meeting to get directions or simply show up on that Saturday. The address of the new DAC Software facilities is 17950 Preston Road, 8th floor. This is a large building located close to the intersection of Preston and Frankfurt, just south of Plano. Enter the building through the main lobby and take the elevator up to the 8th floor.

Michael B. Macaulay

Personal Users (Beginners) SIG

The SIG is designed and geared for personal (versus professional) PC users, novices, beginners, new PC owners, soon-to-be PC owners, people curious about PCs, and PC users wanting some review of the fundamentals.

We offer 16 individual, stand-alone classes covering the fundamentals of PCs. Four classes are offered at each monthly meeting of the North Texas PC Users Group, and the classes always start at 9 AM, 10 AM, 12 noon, and 1 PM. The stand-alone or self-contained nature of the classes allows you, the student, to begin attending at any time convenient to your personal schedule. There are always class notes for your later review, no homework assignments, no pressures, no tests, no fear of asking dumb questions (because we are all attending to learn), and you don't even have to be a member of NTPCUG before you start...***although we surely want you to join after your first session.***

Our September classes will be the second set of four of this cycle, i.e. classes number 5 thru 8. The whole 16-class revolving schedule is printed in another part of this Newsletter.

Come join us and sharpen your knowledge of PC fundamentals.

Bob Presley
& Richard Terreo

Communications SIG

The August 1988 Communications SIG centered upon information concerning IBM's communications products for the PC and PS/2 families of computers presented by Mr. Wayne Caswell from IBM's Southwestern Marketing Division based with their Information Systems Group here in Dallas. Many questions were answered, and it was interesting, to say the least, to hear how IBM's ►

hardware and the Communications Manager in OS/2 are going to tie systems together. Thanks very much to Wayne and IBM.

In September, we will tentatively have a short course on the EIA-232-D specification and/or a review of a data storage device used to store data on one end of a telecommunications link.

Pete Testa

Business Applications SIG

A new general ledger was demonstrated in the July Business Applications SIG. "TAS + Books" by Business Tools, Inc. of Bellevue Washington was quite an impressive product for its price tax of $99. The demonstration diskette will also be available for copying during the August meeting if you didn't catch the demonstration.

At the July main meeting, a show of hands survey revealed that a majority of members attending were using Word Perfect. From this show of interest, a group of Word Perfect devotees met in a corner of the auditorium to discuss how best to obtain more coverage of Word Perfect in a SIG meeting. Some of the ideas reviewed were to create a new Word Perfect SIG, to hold one session a quarter in the Business Application SIG, and to start a new Desk Top Publishing/ Word Processing SIG.

Phil Chamberlain, the SIG Coordinator, suggested the forming of an "application SIG" in which the 1st, 2nd, and 3rd month of each quarter would be devoted to a particular product or subject which would be perhaps saturated if it were covered every month in its own SIG. This idea has particular merit considering the number of rooms available for NTPCUG use, and it should be easier for find SIG leaders who would be available once a quarter versus every month. The agenda will include a discussion of what the members would like to see in Word Perfect coverage and any problems/solutions that users would like to share with fellow users. These are just ideas, we would like to hear yours, so come to the August meeting.

Bruce Schubert

Inside the North Texas PC Users Group Community

Connie Andrews, Volunteer Coordinator

Volunteers are the lifeblood of the Club. This is another in a regular series recognizing those Club members who have contributed their time and efforts as volunteers to assist in presenting the monthly meetings.

NTPCUG Volunteers are listed by area(s) served at the August 13, 1988 Club meeting. Some volunteers worked in more than one role, hence some names appear more than once.

SIG Leaders, officers and directors of NT PC Users Group, the newsletter editor, staff and writers are all volunteers, and are listed separately in other sections.

INFOMART Liaison:

Stuart Yarus
Robert Hilliard*

Presentation/Equipment Setup:

Timothy Carmichael
John Ogle
Tom Powlston**

Vendor Assistance/Setup:

Bob Russell
Peh Lee
Raul Vela

Information/Registration Booth:

Robbie Colclough
John Ferguson
Rick Griffith
Allan Harbaugh
Grover Jones
Tom Krieg
Steve Lanier
John Mackoy
Berard McLaughlin
Glenda Norgaard
Douglas Scott
Connie Testa***
Larry Tucker
Paul Williams
Bobby Wrenn

Disk of the Month (DOM):

DOM table:

Richard Baumann
Marcia Barbour
Bill Barker
Gene Carleton
Charles Carter
Jay Chambliss
Don Chick
Jim Green
Barry Haigh
Robert Hillard
Jo Hohnston
Stan Milam
Cliff Murphy
Dwight Neal
Nancy Ogden
John Patchen
Bob Reynolds
Tom Scurlock
John Sheppard
Jerry Stone
Bobby Wrenn

DOM Central Committee:

Preston Brashear
Charles Carter
Kathryn Crawford
Mark Grunner
Howard Hamilton
Hal Horton
Ken Loafman
Pete Testa, BB Liason

DOM Review/Presentation:

Roy Bales
Charles Carter
Kathryn Crawford
Bill Drissel
Mark Gruner
Howard Hamilton
Kenneth Loafman
Bruce C. Lutz
Dan Marmion
Stan Milam
Larry Tucker
Paul A. Van Dreal

Bulletin Board System (BBS):

BBS Sysops:

Tom Prickett
Maggie Mooney

BBS Steering Committee:

Andrew Chalk
Kent Cobb
David McGehee
Pete Testa
Fred Williams

** Robert Hilliard was scheduled for Information/Registration Booth, but was "appropriated" by Stuart Yarus, Liaison, at the August meeting.*

*** Tom Powlston won MAPS – a financial analysis and projection software program at the end of the 9:00 a.m. demonstration.*

**** Connie Testa – special thanks are due for filling in for Connie Andrews who was in Atlanta, GA, at the time of the August meeting.*

Club policy is that volunteers registered on duty at the time of a drawing on meeting day are eligible to win even though not in the Auditorium.

We have need for volunteers in all areas of the Club for various activities throughout the month as well as on meeting day. If you are interested in participating, please drop by the Information/Registration Booth or the DOM Booth at the next meeting and sign up. Or contact Connie Andrews on the Bulletin Board or at 828-0699. You can volunteer for as little as an hour, or more if you can spare the time. Our members have discovered that it can be quite rewarding in terms of getting to know our Club and its people.

North Texas Personal Computer Users Group, Inc.

P.O. Box 780066, Dallas, TX 75378-0066

Phone (214)746-4699 for recorded information about the User Group and meeting dates.

The North Texas PC Users Group, Inc., is a non-profit, independent group, not associated with IBM or any other Corporation. Membership is open to owners and others interested in exchanging ideas, information, hardware, predictions, and other items related to IBM Personal and compatible computers. To join the Group, complete the application blank printed elsewhere in this issue, and send it with $24 membership dues to the Membership Director whose address is shown at the bottom of this page. A subscription to the newsletter is included with each membership.

Officials

President –
Reagan Andrews, Ph.D. (214)828-0699 h
President-Elect – Jim Hoisington (214)416-3101 h
Program Chair. – John Ogle (214)869-2880 w
– Timothy Carmichael (214) 331-6303 w

Treasurer – Joe Brophy (214)891-8187 w
Secretary – David McGehee (214)681-0202 h
Membership Dir. – Robert Kolodner (214)821-6015
Disk of the Month – Kathryn Crawford (214)596-2539
Group Statistician – Connie Testa

Special Interest Groups

SIG Coordinator
– Phil Chamberlain (214)243-5034 h
– Zack Porterfield (214)434-1844 w
Astrometry – Arlin Collins (214)351-5137 h
Assembler – Andrew Chalk, Ph.D. (214)226-3461 h
– Stan Milam (817)548-1573
Business Applic. Bruce Schubert (214)991-5967 w
C Language – Sid Nolte, Ph.D. (214)233-6178 h
CAD/CAM – Mark Cook (214)420-8504
– John stovall (817)382-0411
Communications – Pete Testa (214)495-7506
– Wm. Bennett (817)346-0862 h
– (817)762-3059 w
Cryptanalysis – John Taber Metro 430-8173
– John Thomas (214)660-1823
DAC Software – Mike Macaulay (214)960-6656
DBase – David Hayden (214)644-0923 h
– Jack Aitken (214)218-1346
DOS – Jim Hoisington (214)416-3101 h
– Reagan Andrews, Ph.D. (214)828-0699 h
Genealogy – Minnie Champ (214)341-6507 h
Hdw Solutions – David McGehee (214)681-0202 h
– Gary Johnson (214)937-9676 w
– (214)937-5851 h
LOTUS – Mark Gruner (214)964-8174 h
– Pat Henley (214)229-9216 h
Personal Users – Bob Presley (214)867-1679 h
–Richard Terreo (214)307-1259

Programmers – Kent Cobb (214)343-3554
– Jim Hoisington (214)416-3101 h
Stock Market – Cliff Murphy (214)279-7973
– Richard Hoierman (214)341-4774 w
Turbo Pascal – Don Chick (214)276-2524 h
– Stan Milam (817)548-1573
Wordstar – Quentin Marshall (214)746-4880
– Cliff Kinard (214)746-4880

NOTE: To access the BBS from outside Area Code 817, use Area Code 817. (This is NOT a toll call from Area Code 214.)

BULLETIN BOARD SYSTEM – (817)461-0425 (Metro)
(817)461-0506 (Metro)
SYSOP: – Tom Prickett (voice) (214)690-9087
Asst. SYSOP. – Maggie Mooney
Technical Advisors: Fred Williams
Pete Testa

Address Changes, etc...
Payment of dues, address changes, and inquiries about membership should be directed to
NTPCUG Membership Director
P.O. Box 780066
Dallas, Texas 75378-0066
(Check newsletter mailing label for your renewal date..)

MEMBERSHIP APPLICATION
North Texas PC Users Group, Inc.

The NTPCUG is a non-profit, independent organization of individuals learning to apply personal computers to practical problems. For additional information about the Group, call (214)746-4699.

NAME: (Last) _____ (First) _____ (MI) _____

ADDRESS: _____ (Suite/Apt) _____

OCCUPATION/PROFESSION: _____

CITY: _____ STATE: _____ ZIP: _____

PHONE: Home__ (_____) _____ Work__ (_____) _____ (Ext) _____ (Check Preferred. #)

Do you want access to the Club Electronic Bulletin Board? YES [ ] NO [ ] Already Have [ ]

The NTPCUG expects and encourages volunteer participation by members in helping put on the monthly meetings at INFOMART. This usually consists of a few hours of your time each year. If asked, would you consider assisting the Group with one or more of the following activities:

[A] Working with NTPCUG Volunteer Committees?

Volunteer Areas from [A] above (Please check all that apply.)

[IB] [ ] Information/Registration	[NL] [ ] Newsletter	[FB] [ ] Financial/Bookkeeping
[NL] [ ] Equipment Setup	[DM] [ ] Disk of the month (DOM)	[PR] [ ] Publicity/Public Relations

[B] Giving a talk or demonstration to a small group?

[C] Giving a talk or demonstration to a large group?

[D] Being a volunteer, informal "consultant" in your area of expertise for NTPCUG members?

Would you be interested if the Group arranges instructional courses (at various levels) in any of the following areas at a cost per student of approximately $5/classroom hour?

(Please circle or specify, indicating level preferred, i.e., beginning, intermediate, advanced)

[A] Spreadsheet software – Lotus 1-2-3, Supercalc4, etc. (Please specify) _____
[B] Data Base software – dBase, RBase, Reflex, etc. (Please specify) _____
[C] Word Processing software – Word Perfect, Wordstar, etc. (Please specify) _____
[D] Integrated software – Framework, Symphony, etc. (Please specify) _____
[E] Programming Languages – APL, Assembly, BASIC, "C", Fortran, Forth, Pascal, (other) _____

Payment Received:	Membership Classification:	Aplication Status:
Cash _____	Regular ($24.00) _____	New Member _____

Detach below for record of payment.

Applications should be mailed to: North Texas PC Users Group
P.O. Box 780066
(Make checks payable to NTPCUG) Dallas, TX 75378-0066

Payment: $ _____ Check No. _____ Date:__/__/__ by: _____

MEMBERSHIP CARD

This is your membership card in North Texas PC Users Group. You will need it for identification at Disk of the Month sales, group purchases and other activities. This card is valid only for you, the person named on the label on reverse side. It is valid through expiration date shown on the label.

When trimmed, the card will fit transparent badge holders available at your stationers.

Wear your membership card while attending meetings and other functions of the Users Group.

Membership Card
North Texas PC Users Group, Inc.

This card valid only for individual named on label affixed to reverse side, only through year/month printed on the label, and only with proper identification.

Print Name: _____

Signature: _____

Trim card to wallet size.

Meetings & Times

9:00 AM to 11:00 AM

AUDITORIUM **Dell Computer Corporation and Tandy Corporation**

9:00 "Presentation of 1988 Computer Products – Texas Made"

10:00 Panel Discussion
"Texas Made Computers of Next Year and the Future"

11:00 to 11:30

AUDITORIUM **NTPCUG Business Meeting**

Take an active part! Attend the business meeting.

Special Interest Group Meetings...

Scheduled SIG times could change. Check the Bulletin Board just before the meeting. Check room numbers on the overhead display in the lobby at INFOMART.

9:00 - 9:55

Assembler
DOS
CAD/CAM
Hardware Solutions
Personal Users

10:00 - 10:55

Astrometry
Personal Users

11:30 - 11:55

Orientation

12:00 - 12:55

C Language
Communications
Personal Users
Stock Mkt Investing

1:00 - 1:55

Business Applications
LOTUS
Personal Users
Turbo Pascal

2:00 - 2:55

Advanced Programmers
Cryptanalysis
DAC Easy Accounting
dBase Programmers

North Texas PC Users Group
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Dallas, TX 75378-0066

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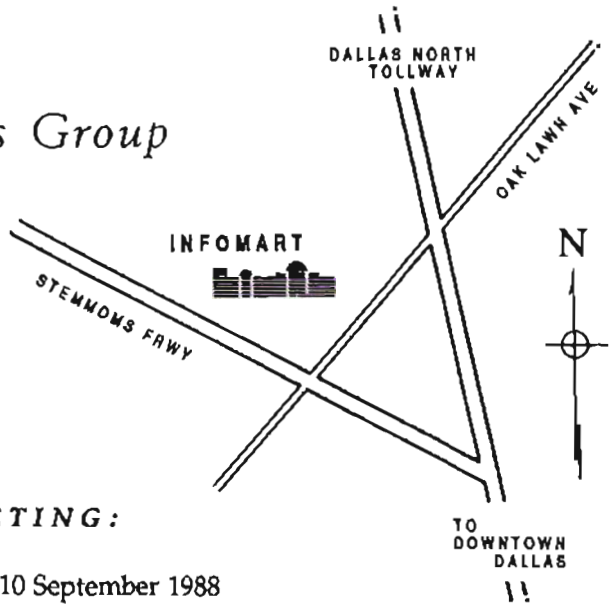

NEXT MEETING:

10 September 1988