THE BOSTON COMPUTER SOCIETY TI 99/48 USER GROUP

RUGUST, 1990 MEETING NEWSLETTER





LISTEN!

by Justin Dowling

NEW DISKS
We have some new disks in
the library and some
updated versions of older
programs. We have an update
of John Birdwell's Bisk
Utilities. #87 is now U4.2.
This fine program does all
that DM1000 does plus it
has a sector editor and
permits you to add comments
to your disk directories so
you will know what some of
the more cryptic filenames
do.

TIPS is an updated version of U8. V1.6 is now archived. U8 contains two utilities written in a that let you view the picture files and convert them to TI Artist format faster than TIPS can. It also contains the picture file PGAZ/ARC that contains about 120 pictures.

Nos. U9, U15 and U16 contain more TIPS picture files.

U12 is V1.3 of PIX. This is also the Disk of the Month. Whereas TIPS is a graphics program that does labels, banners, cards and signs,

PIX has a telecommunications flavor, like MAX-RLE. PIX can display Artist, Graphyx, Pix, Pix 128, and RLE pictures in addition to printing them out. Donald has put a variety of picture formats on the disk of the month.

U17 is a program for the Geneve. It contains 4 routines to add to your Autoexec file so your Geneve will greet you, list your appointments. give you a calendar and permit you to change the type face on your screen.

MEETING
Among the topics for this
evening is the Page Pro
Utilities by Paul
Scheidemantle. Like the
parent program by Ed
Johnson Page Pro 99, these
utilities run on both the
99/4A and the Geneve. There
are 6 major utilities. (Of
course, behind each option
is a number of suboptions.)

THE ENLARGER will enlarge, reduce, or ghost pictures so you can squeeze them

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where they don't fit. I ghosted a picture for the title page, printed it out, rolled back the printer, and printed page two right over it instead for this newsletter.

THE FLIPPER lets you use the What You See is What You Get (WYSIWYG) nature of Page Pro to produce cards without having to flip the pictures in II fittist and then convert them to Page Pro format.

white space from your enlarged pictures to make them more compact and efficient to was

THE LINE FORT EDITOR IS AN incomplete font aditor Right now, it walk late you edit line forts on create your own. Eventually Paul S plans to put something behind the menu selections that invite you to edit or create your own small or large fonts for use in Page Pro.

The Page Pro William tres also allow you to choose Page
Pro from its main menu and
catalog a disk. The Letter utility is expecially useful since the bage Pro program itself seems to rely on your back to printed catalog of avery disk in your system so you know what files are wo which drives and how to spell their manes:

There is a commercial version of PIX called PIX PRO. I'm not sere, but I think PIX PRO will bandle larger pictumess

Page Pro Utilities by Paul Scheidemantle is available from Asgard for \$14,95 plus

ASGARD Software V FO Box

AFFILIATE BCS MEMBERSHIP. It's a new idea. It's one of the ideas being hatched to deal with the decline in growth of the general BCS membership.

Affiliate membership is a plastic concept right now. One which we have the chance to shape in ways that will permit the 99/4A to endure as a useful home alternative to more expensive computer systems focussed on the business place and on the school. Bur group must also deal with the decline in growth that began for the 99/4A in October 1983 but has not been a threat to growth as Jong as the TI community completed plans for this machine Texas Instruments abandaned an addition to executing new plans TI never even thought of.

Affiliate membership thus far could be a membership we could offer to a few of the officers of a 99/4A group in, say, Alabama, which would beherwise fold. In return, we would have to keep them connected to the 99/4H marketplace.

Affiliate membership might be a webicle driving the regional iproduction of a New England Fair. New England Daer Groups would produce the BCS would continue to underwrite it.

At the September meeting, in addition to alerting you to the latest blurb, like the impending HFDC compatitor, we will discuss in more detent our plans for the 1991 annual fair. One of the questions before us will certainly be the participation of various Tocal proups like the Nutney 99ers or MUNCH. 10306 & Rockville, #1 20849 # ####111 # wentership would

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certainly seem to be tangent to this issue.

THE STATUS QUO. Currently we are meeting rent free at the Charles River Museum of Industry in Waltham. We meet, using the system donated to the museum by The BCS, a system donated to them by INFOCOM (for the tax break I imagine) when they moved from Cambridge to California.

The BCS gave us two half height drives and a power supply. We modified the standalone drive to hold both BSK1 and BSK2, which are now double sided drives. (When we get a new HFBC, will they be double density drives also?)

The BCS also gave us a 5 Megabyte hard drive which we will put in the P box when we get a HFDC from the new supplier not yet in sight.

We also got hardware and software from The BCS for Tom to use on the BBS. This freed up a printer. That's the TI 850 printer at the meetings.

We are encouraging the museum to use this system with TI Base to do fundraising. Some of our number have graciously agreed to help the museum do this. We would also like to help the museum reach out to their neighbors next door by supporting a graphics workshop that would let them use the system to turn out cards and banners and signs.

That's all for this month. 'See you at the next meeting!

INTRODETION TO THE P SYSTEM by Ron Williams

This month I have a program that creates a Hexadecimal to Decimal conversion table. This program demonstrates a few text formatting techniques. I use a few loops in the program to print out the headers for the table and variables in the writeln statements to format output. The function hexnum will take a number from 10 to 15 and convert it to the hex number equivalent. As you can see the hex number can be printed right from the writeln statement as the function is called from the statement. The decimal numbers printed in the chart you may notice are very large numbers with a lot of decimal places. While in the program this number is defined as a real number I had to do this for a reason. The integer type number can only be as high as 32767 the largest number printed by the program is a lot bigger than this. One more way to get around this would be to declare a long integer these numbers can have as high as 36 decimal places the program does not have numbers to print this large. By using a real number I don't have to declare any decimal places like I would with a long integer. The long integer must have its length pre-defined in the var or type sections of a program

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before you can use it. If you don't know how big a number will be I say use a real number. After you get the program running you can aways convert the program to use long integers. Sometimes working with integers is better than real numbers as there are quite a few Pascal functions to convert integers to strings and other types. If you define all long integers to max decimal places this may also work for you but it is very wasteful of memory and some programs on the TI need as much memory to run as possible. The program's output is directed to the printer if you look at the rewrite statement. If you want output to go to the screen change PRINTER: to CONSOLE: all program output will then be to the screen. You may also want to make output from the program go to a text file all you do is to change PRINTER: to a file name like CHART. TEXT do not add the : colon to the file name. Reading the chart is simple to see what hex number >FF is in decimal just look for the decimal number next to the left most digit of the hex number this number is 240 then add the decimal number to this in the right position so hex >FF is 240+15=255 decimal.

The program is as follows:

```
Program hexchart;
var
  lst : text;
  dec :
        real:
  count,loop,row : integer;
  function hexnum(loop : integer): char;
    begin
      case loop of
        10 : hexnum:='A';
              hexnum:≓'B'
        1 1
             hexnum:='C'
        12:
             hexnum:='D'
        13:
        14 : héxnum:='E'
        15 : hexnum:="F
      end;
    end:
  procedure hexprint ( decin : real);
      if count < 6
        then
          begin
            count := count +1;
            decin: = decin * 16;
            hexprint(decin);
            row:=row - 1:
             if loop > 9
               then
                 write(lst,hexnum(loop),decin:row:0,' ')
                 write(lst,loop,decin:row:0,' ');
          end:
    end;
```

```
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begin
  rewrite(1st,'PRINTER:');
writeln(lst,'Hexadecimal to Decimal Conversion Table');
   writeln(lst):
       loop:= 8 downto 2 do
        write(lst,loop:10);
   writeln(lst,'l':8);
  write(lst,'HEX':3):
  row: =13;
   for loop:= 1 to 6 do
     begin
       write(1st,'DEC
                          HEX':row);
       row:=row - 1;
     end;
   writeln(lst,' DEC
                        HEX DEC'):
  write(lst,'0'):
   row:=13;
  for loop:=1 to 6 do
     begin
       write(lst,'0 0':row);
       row:≃row -
                      1:
                                           Practical jokes
     end;
                                                of the wild
  writeln(lst.'
                                    0');
   dec:= 16;
  for loop:=1 to 15
     begin
       count:=0;
       row:=12;
       hexprint(dec);
       if loop >
          then
             writeln(lst,hexnum(loop),dec:row:0,' ',hexnum(loop
             writeln(lst,loop,dec:row:0,' ',loop,loop:6);
       dec:=dec + 16;
     end:
     close(lst,lock);
Hexadecimal to Decimal Conversion Table
                                                                  2
HEX
        DEC HEX
                                        DEC HEX
                    DEC HEX
                              DEC HEX
                                                DEC HEX DEC
                                                           HEX DEC HEX DEC
Ø
          0 0
                      0
                                                   0 0
                                                          00
                                Ø
                                                                  00
                                                                          Ø
1
   268435456 1
               16777216 1
                           1048576 1
                                      65536 1
                                                4096 1
                                                        256 1
                                                                          1
                                                                 14
                                                                   1
2
   536870912 2
               33554432 2
                           2097152 2
                                     131072 2
                                                8192 2
                                                        512 2
                                                                 32 2
                                                                          2
3
   805306368 3
               50331648 3
                           3145728 3
                                     196608 3
                                               12288 3
                                                                          3
                                                        768 3
                                                                 48 3
4
 1073741824 4
               67108864 4
                           4194304 4
                                     262144 4
                                               16384 4
                                                       1024 4
                                                                          4
                                                                 64 4
 1342177280 5
               83886080 5
                           5242880 5
                                               20480 5
                                                                          5
                                     327680 5
                                                       1280 5
                                                                 80 5
6 1610612736 6 100663296 6
                                     393216 6
                           6291456 6
                                                       1536 6
                                                                 96 6
                                                                          6
                                               24576 6
 1879048192 7
                                                                          7
              117440512
                           7340032
                                     458752 7
                                               28672 7
                                                       1792
                                                                112
                                                                    7
 214748364B B
                                                                          8
              134217728
                       8
                           B388608 B
                                     524288 B
                                               32768 8
                                                       2048 8
                                                                128 8
 2415919104 9 150994944 9
                                               36B64 9
                                                                          9
                           9437184 9
                                     589824 9
                                                       2304.9
                                                                144 9
 2684354560 A 167772160 A 10485760 A
                                     655360 A
                                               40960 A
                                                       2560 A
                                                                160 A
                                                                         10
B 2952790016 B 104549376 B
                         11534336 B
                                     720896 B
                                               45056 B
                                                       2616 B
                                                                176 B
                                                                         11
```

12582912 C

13631488 D

14680064 E

49152 C

53248 D

57344 E

61440 F

786432 C

851968 D

917504 E

983040 F

3072 C

3328 D

3584 E

3840 F

192 C

208 D

224 E

240 F

12

13

14

15

3221225472 C 201326592 C

3489660928 D 218103808 D

3758096384 E 234881024 E

4026531840 F 251658240 F 15728640 F

Martian Math

by Justin Dowling

In the short run, this article wants to de-mystify all this talk about Hex for you was who diske mendo not program in Assembly Language. And who singlike men stay away from a sector editor at all costs, preferring to use in intermediate disk manager program like DM1000 to alter the date on your disk or nothing at all.

In the long fun, this article wants to discuss general, number theory, which is Therein to you for doing main in your head; not just on your computer.

What if a mirtian lander? You see him being this remed on the Six D'Clock news, gesticulating wildly with his funny-looking, two-fingered hands, trying to communicate:

Whatever it is he's saying, you can be sure that it they mask him for the answer to 5 % 3 he will may 12 to his twen way of speaking.

His way of speaking is surely different from burs. And his numbering system is 1 kely to be different also. With only two fingers on his hand I would guess his numbering system is based on two, not ten. (He must think compilers were invented for him and we have none; for base two, binary wath, is the language of the computer.)

The computation is a sample instrument, probably it is the same for him as it is for 48 because it is trally a number demonstration begins two is the lowest number its system for measuring something blogger than one. A computer is like a simple switch at bottom: It is mither off or on. Two states. Binary:

But back to the Martian on TV: Most people would coree that life is the same size for him as it is for sec. And the numbers we use to measure it aust vield answers equivalent to his. Ten is ten is ten. Our visitor, if his minbering system is based to two, would write 10 as 1010. If his minbering system is based on is, on hexadecimal, 10 is A. The following three charts express all the himbers available in a system based on 2, on 10 and 10 is in the system based on 2, on 10 and 10 is in the system based on 2, on 10 and 10 is in the system based on 2, on 10 and 10 is in the system based on 2, on 10 and 10 is in the system based on 2, on 10 and 10 is in the system based on 2, on 10 and 10 is in the system based on 2, on 10 and 10 is in the system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 2, on 10 and 10 is a system based on 10 is a system based on

Binary: 0,1 Decimal: 0,1,2,3,4,5,6,7,9,7 Hexadecimal: 0,1,2,3,4,5,6,7,8,9,4,8,C,D,E,F

Here is a simple method to convert wastly from one number system to the

next. It is based on "the powers of ten" which is a simple but powerful concept that can be used also as "the powers of two". With this concept, you can convert a number expressed in any numbering system into the most basic numbering system: binary.

The Powers of Ten

 $10^{3} = 10 \times 10 \times 10 = 1000$ $10^{2} = 10 \times 10 = 100$ $10^{1} = 10$ $10^{2} = 1$

The decimal number 4,321 contains 4 \times 10°, 3 \times 10°, 2 \times 10°, and 1 \times 10°.

The Powers of Two

ANYTHING TO THE ZERO POWER IS ONE!

Let's see how our martian visitor would express our decimal number 4,321. We must subtract the largest power of two over and over until the remainder is zero. 4,321 contains a 1 X 2^{12} (4076), a 1 X 2^{7} (128), a 1 X 2^{6} (64), a 1 X 2^{5} (32), and a 1 X 2^{6} (1).

Let's check ourselves:

NOW let's write out 4321 in binary as our martian visitor would do. Put a "1" where we have a hit and a "0" where we miss: 1000011100001

HOW would we express this number in base 16 hexadecimal? We know by inspection that it takes 4 binary characters to express a single hex number. Hex "F" (15) is equivalent to a binary "1111".

We expressed above the decimal number 4321 as a binary 1000011100001. To convert this number to hex we need only to set the binary number off into groups of 4 characters and read it off with reference to the table below:

Binary Hex Binary Hex Binary Hex Binary Hex 0000 = 0, 0100 = 4, 1000 = 8, 1100 = C 0001 = 1, 0101 = 5, 1001 = 9, 1101 = D 0010 = 2, 0110 = 6, 1010 = A, 1110 = E

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0011 = 3, 0111 = 7, 1011 = B, 1111 = F

Inspecting our binary 4321 we have: 0001 0000 1110 0001

Converting this number to hexadecimal we have:

O۲

1 X 16 = 4096

0 X 162 =

 $E \times 16^{1} = 224$

1 X 16° ==

4321

NEW subject. ASCII. American Standard Code for Information Interchange. ASCII attempts to bring standardization to the object of our communication: the alphabet and related punctuation, so that oral speech can be communicated in writing or in some (any) mechanical format based on numbers.

For example, the letter "A" is an ASCII 65 whether it is generated by a 99/4A, an IBM PC, a Macintosh, or a Western Union Telegraph Operator sending a message. If you're doing some sector editing on your 99/4A disk, you might see the letter A as "41" in hex mode. The binary is 1000001. Isn't this easy?

