

PORT FE

SORCERERS USERS' GROUP
(Toronto)

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SORCERER

Newsletter



The Toronto Sorcerer Users' Group was founded in the Spring of 1979, a handful of willing and eager to learn members.

This newsletter shall at all times keep in mind the goal at its conception. To spread the seeds of knowledge.

Articles printed in this newsletter shall be free for all Sorcerer Users' groups to reprint or comment on as they see fit.

Articles submitted for this newsletter must be in no later than the beginning of the 1st of every month.

March 1982 ISSUE

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GENERAL INTEREST

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CP/M RELATED

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HARDWARE TIPS

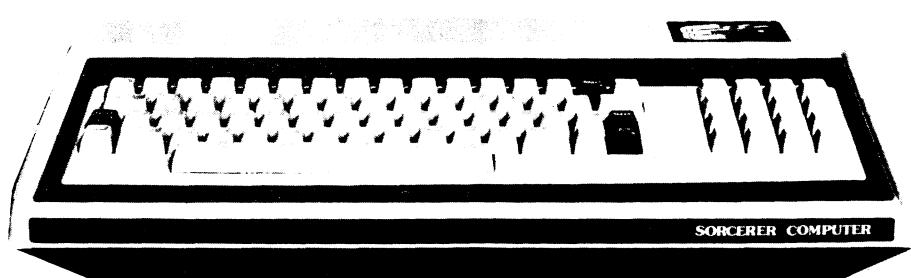
12. - Part II ~ The PIO INPUT
14. - Membership Application Form.

MEETING PLACE

Location : Bathurst Heights Library - 7:00 PM 3170 Bathurst St.

April : Wed. 14th. May : Thurs. 13th. June : Wed. 16th.

One block north of Lawrence on the west side of Bathurst.



----- The Prez Zez -----)

From the front lines we are told that Exidy have made their move to the BIG state of Texas. Now from what rumour has it, the fun begins.

We hope that with their move comes 'ahem' improvement. Like most of the companies that have lived (survived) in the Silicon regions known as California. They are probably tired of grape pickers doing the assembling. Well let me make it a bit more plain, the Mexican assembly workers come a little bit cheaper than the unionized grapepickers. Of course no one from Exidy will admit to that one.

Now that all of you see some glimpses of the truth, I will leave it up to you to figure out the fact from fiction.

NEC anyone?

Here's a little bit of knowledge that was passed down from one of the local computer stores in town. The NEC computer is very much like our Sorcerer with a whole lot more thrown in. You have the choice of video modes, like 40,64 or 80 characters per line with or without colour. Memory expansion to 128K, cursor addressable screen, analog input port, parallel input/output port, serial input/output port, joystick (2) inputs, RS232 input/output, 5.25 disk controller on board, expansion unit, on screen status line, four programmable function keys, programmable graphics, mixed graphic and text mode, single dot addressable screen, graphics screen dump (comes with the CP/M 2.2), Basic in ROM that does not have to be plugged in). all EPROMS/PROMS are in shadow mode and are interrupt driven, 64K ram with CP/M, etc... etc... etc...

There are two problems though, first are those dam slow 5.25 inch disk drives and the other is (ssssshhhh it has a scanned keyboard). But all in all I didn't notice those problems since when I was using it, everything was pretty fast at 4 MHZ with the 10 megabyte hardisk.

The telecommunication package put out for it allowed one to tie into the BBS systems and transfer programs without a hitch. It was even able to talk to my Sorcerer at 4800 baud. That was something to behold, using the SMODEMX program at 16 times its normal speed.

Well I think that its time to close the cookie jar and get back to my dry bread with water.(lumberjack special)

IRISH RAM PAC REVIEW

We have had a chance to review one of the RAM PACS sold by an organization in Ireland, Weston Microtechnology Ltd. 12 Alma Road, Monkstown, CO. Dublin.

From what I can determine we have gotten one of the first ones put together and the actual printed labels were not even ready then. The RAM PAC manufactured is in the form of an eight track cartridge, just like what Exidy supply. this particular format is what is to be expected.

Initial tests were done using two Model II Sorcerers and each one having 32K of on board ram. Everything checked out fine. The added expansion allowed the increase of memory to DBFF hex. Modifications to the Sorcerer II's was nothing to speak of at all, only one wire had to jumper the WR line to the ROM socket. Then just plug it in. The whole modification was done in ten minutes, and most of that was taking out the screws and putting them back again. All ram testing showed ok (not the Exidy ram test in the monitor). After closer examination the RAM PAC was opened up to check the quality of parts and workmanship. The rams that were used surprised me. They were Fairchild ceramic chips with gold plated pins (not cheap by any means) and were even socketed. The board itself is of high quality G10 fiberglass one of the best PC (printed circuit) materials available.

Documentation was adequate with enough information for anyone to follow. The WR line information was (pictorially) not clear, but when checking the Exidy schematics and the main PC board everything became clearer. We also tried to hook this up to a Sorcerer I but without the same success. I must check into this at some future date if I can find the time.

I can at this time recommend this RAM PAC for All Sorcerer II's using the Micropolis disk drives. My reasons will become clear and this article is Continued next page.

Ram Pac Review continued.

The documentation supplied shows the Exidy FDS disk drive modifications, but when these were tried the FDS drive cold boot loader could not be relocated to DC00 hex. Maybe we have some members here in Toronto with unusual FDS drives maybe first issue or something but again two Sorcerer systems each with the FDS drives was tested and both exhibited the same problem, non relocation of the cold boot loader. This is not a problem of the RAM PAC as much as I think it is with the FDS drives. When examining the FDS controller circuitry I noticed that the relocation dip switches only allowed one to lower the cold boot loader address but not increase it. I believe that Exidy in their RAM PAC with AUTO boot have realized this potential problem. Now if there is a way of changing the controller boot address then the Weston RAM PAC will be fine. Should Weston be able to shed some light on this matter, by all means do so.

Next the subject of flexibility. The Ram Pac shows some sign of being able to be jumpered, but nothing in the documentation is given to that effect. I would expect that the jumpers could be for replacing one of the rams with an EPROM. Further documentation should be supplied.

The mechanics of how the RAM PAC is put together should be hopefully cleared up during the actual production run. The screw holding the two halves of the eight track cartridge together was a bit crude one could say.

One last comment with regard to anyone who wishes to use any RAM PAC whether it comes from Exidy or from Weston or was home brewed. Remember that if the WR line is brought out to pin 28 of the ROM PAC socket that some early versions of the ROM PACS from Exidy had pins 28 & 30 joined. You would have some real problems because this would ground out the WRITE line in the Sorcerer when ever an old ROM PAC was inserted. The simple thing to do is check the ROM PACS that you have pin 28 (second pin from the end on the component side of the board with the connector facing up) free. If it is not then take an exacto knife and cut a small 'V' groove between pins 28 & 30 which is the right most pin. Pin 30 is the ground (or common). Exidy used to double up on that pin to insure a good ground (common).

This is an honest appraisal of the RAM PAC and is totally unbiased.

by: H.A. Lautenbach

CALCSTAR & SUPERCALC - warning to potential buyers.

As sold, the programs require addressable cursor positioning routines and make it one hell of a headache to try to get to work with the Sorcerer. At this time there are no easy fixes for this problem, nor are there EXIDY versions available from the manufacturer or suppliers.

It is at this time advisable not to purchase this software. Should the suppliers or originators change this status we shall let you know.

Exidy Monitor in the News

Well from what I can gather, There seems to be some good input comming from a few sources far and near. One of the first points that has been mentioned by almost all of the people that want to see the monitor rewritten, has been to get rid of the following:

For sure a) The ram test routine.
Under consideration b) Creat, List, Batch, Over

Revisions to known bugs:

Keyboard scan, monitor buffer, backspace,
serial port, cassette file header

As you can see these things could be removed without too much concern.

Some of the things that are under consideration are the following.

addressable cursor routine, I/O call routines, PIO call routines

If any of you have any more comments please feel free to do so.

CP/M Software Modifications for The Sorcerer
 =====

Over the last six months I have collected a number of bug fixes and software modifications for various CP/M related programs. These include terminal I/O to the Sorcerer monitor and changes in CP/M 2.2 itself.

MBASIC and OBASIC -- This will change the backspace key from Control-H to SHIFT-RUB and make the screen width 64.

```

A>REN MBASIC.BAK=MEASIC.COM
A>SID MBASIC.BAK  ----> you can use DDT instead of SID
#GE003  ---> exit to the monitor
>EN 07B3
07B3: 40 2A/  --> set WIDTH xx to 64 characters
>EN 4B7B
4B7B: 00/
>EN 4B67
4B67: 08/
>EN 4B72
4B72: 00 00 00/
>EN 4BA9
4BA9: 00/
>GO 0  ----> Return to CP/M
A>SAVE 96 MBASIC.COM

```

The following may be done to OBASIC ver. 4.51 to change the backspace key to SHIFT-RUB.

```

A>REN OBASIC.BAK=OBASIC.COM
A>SID OBASIC.BAK
#GE003 ---> exit to monitor
>EN 0727
0727: 40 2A/
>EN OFFB
OFFB: 3E 08 C3 1B 10/
>GO 0
A> SAVE 73 OBASIC.COM
-----
```

Wordstar Version 0.93 Mods:

This modification to Wordstar will stop Control L and 'CLEAR' from clearing the screen and resetting the inverse character set.

```

A>REN WS.BAK=WS.COM
A>REN WSMSCS.BAK=WSMSCS.COM
A>SID WS.BAK
#GE003 ---> exit to monitor
>EN 236B
236B: CD 18 E0/  ---> This bypasses the CP/M console
input routine. Thus CP/M won't clear
the screen when ^L is pressed.

```

The following modifications are for setting Wordstar up to be compatible with a MX-80 printer and its different character sets. You will be able to change any aspect of the printer's status with imbedded control codes in the text.

```

>EN 05D9
05D9: F5 C3 9B E9/ ---> jump to Centronics printer driver
>EN 057F
057F: 01 0F/
>EN 0589
0589: 01 14/
>EN 058E
058E: 01 0E/
>EN 0593
0593: 01 12/
>EN 0598
0598: 01 1B/
>EN 05C9
05C9: C3 DD 02/ ---> jump to printer port initialization
>EN 02DD
02DD: C9/ ---> you may place any initialization
                  routine here, such as toggling the

```

Auto-line feed off or resetting the graphic mode. That is if these printer lines are attached to a special output port.

```

>GO 0
A>SAVE 104 W3.COM
A>SID WSMSCS.BAK
#GE003 ---> exit to monitor

```

We now have to change the PRINT MENU in Wordstar to include our new control code messages. Type in the following listing. It overlays the old menu.

```

0D50: 0E 46 3D 50 68 61 6E 74 6F 6D 20 73 70 61 63 65
0D60: 20 54 3D 43 6F 6D 70 72 65 73 73 65 64 20 43 68
0D70: 61 72 2E 20 6D 6F 64 65 20 4F 4E 20 20 20 20 20
0D80: 20 20 20 20 0E 53 3D 55 6E 64 65 72 6C 69 6E 65
0D90: 20 09 20 20 20 20 42 3D 42 6F 6C 64 66 61 63 65
0DA0: 09 09 44 3D 44 6F 75 62 6C 65 20 73 74 72 69 6B
0DB0: 65 20 20 20 20 20 20 0E 52 3D 45 53 43 27 50 72
0DC0: 6F 67 72 61 6D 69 6E 67 20 51 3D 44 6F 75 62 6C
0DD0: 65 20 57 69 64 74 68 20 4F 46 46 20 09 58 3D 73
0DE0: 74 72 69 6B 65 6F 75 74 20 62 65 67 69 6E 2F 65
0DF0: 6E 64 0E 4F 3D 6E 6F 6E 2D 62 72 65 61 6B 20 73
0E00: 70 61 63 65 20 57 3D 44 6F 75 62 6C 65 20 57 69
0E10: 64 74 68 20 4F 4E 20 20 09 47 3D 70 68 61 6E 74
0E20: 6F 6D 20 72 75 62 6F 75 74 20 20 20 20 0E 43 3D 70
0E30: 61 75 73 65 20 20 20 20 20 20 20 20 20 20 20 20
0E40: 20 45 3D 43 6F 6D 70 72 65 73 73 65 64 20 43 68
0E50: 61 72 2E 20 6D 6F 64 65 20 4F 46 46 20 20 20 20
0E60: 20 20 20 20 20 0E 52 45 54 55 52 4E 3D 6F 76

```

New Commands for the MX-80 printer:

^T - Compressed char.mode ON	^E - Compressed char.mode OFF
^W - Double width ON	^Q - Double Width OFF
^R - ESC'programming	

To access ESC sequence commands of the MX-80 use the ^R switch. ex- To set line spacing to 7/72" per line use '^PAR1'.

-----> Now save the Wordstar messages on disk:

```

>GO 0
A>SAVE 77 WSMSCS.COM
A>WS                  ---> give Wordstar a trial spin

```

Bring up a test file in (D) mode. When in the edit mode, hit ^L - the screen should display ' ^L ' and NOT clear the screen. To use the new MX-80 commands, just type ' ^P ' then one of the new characters. ex- ' ^P^{W} ' will display a ' ^W ' on the screen. Now to check the menu, type ' ^P ' and wait a moment. If the menu did not print correctly (not all in inverse characters) then reload WSMGS.COM again and correct any mistakes or check to see if the listing destroyed a part of the menu (your WSMGS.COM may be different from mine).

Improvements for Lifeboat CP/M 2.2

The CP/M 2.2 I received with my DISCUS 2D/B had three inconveniences that I really found hard to live with. First I couldn't go to the monitor without hitting RESETS and possibly crashing the computer; second the control-H backspace would make the computer lock-up; and thirdly - output went to the screen as well as the printer when ^P was toggled (this is a problem with (P)rinting a Wordstar document file).

If you have already modified your CP/M 2.2 with Walter Blady's CBIOS revisions from July 1981 Port FE, then replace the commands between the lines with these instead. You must have the MOVEDCPM with the modifications in it as a file. See the July article for further info.

```
A>SID CPM48.XDY
#GE003
```

---> now jump over the commands between these two lines.

A>MOVCPM 48 * ---> or 32 for 32k Sorcerer
CONSTRUCTING xxK CP/M VER 2.2

----> hit the reset buttons to get into the monitor.

This mod. will allow you to exit to the monitor with ^Y . Note: don't include this one mod. to the disk containing the SMARTMODEM program, as it needs ^Y to toggle the screen pages.

```
>EN 2B08
2B08: FE 0C CA B1 E9 FE 19 CA 03 E0 C9/
>EN 2A59
2A59: CD 09 E0 28 FB C3 08 B7/
```

The following mod. will make all screen output go to the Centronics printer driver with a ^P toggle from the keyboard. Nothing will go to the screen when ^P is toggled.

```
>EN 270F
270F: C3 03 B7/
>EN 2B03
2B03: 79 F5 C3 97 E9/
```

This last mod. will fix the Control-H backspace problem. This also would fix the problem with CBASIC where everything is lost if the H is pressed.

```
>EN 1A1D
1A1D: 00 00/
>GO 0
```

Insert a diskette into drive A: that doesn't have anything important on it (it must be FORMATED and have an operating system on it). Then do the following:

A>^C

A>SAVE 44 CPM48.XDY

A>SYSGEN CPM48.XDY ----> and follow the instructions

Do a RESET of the computer and bring up the new system. Then try out the bug problems I mentioned at the start of this section.

These fixes have made working with CP/M that little bit more enjoyable without those inconveniences. I hope it will do the same for you.

Monopoly in Basic

As most of you are aware this is one of the most favorite of games for all ages. Well in the following you will see a Monopoly listing. The listing is complete but the game is not yet finished. There remain still a few bugs to be worked out. The problems are related to the counting section and there are also some features missing that are in the real game. The Community Chest and Chance responses are very poor.

I throw this out as a challenge to those ardent members of our club. and the first one to work out all the bugs will get a free one year membership to PORT FE. The first person that adds graphics and cleans up the bugs will receive also a one year membership and a free copy of Volume III library tape.

The winners will be announced in PORT FE as they come in. Now here's the listing, written in Exidy Disk Extended Basic. Programming shall not be limited to Disk basic and will be accepted in Extended 19K Basic or ROM PAC basic.

```

5 REM MONOPOLY
10 PRINT CHR$(12):CLEAR 15:DIM A(40),MO(40),C(6),R(8),G(5)
12 REM P(1)=1:P(2)=1:P(3)=1:P(4)=1:P(5)=1
20 PRINT CHR$(12):PRINT,"* * COMPUTER MONOPOLY * *"
50 T=1:INPUT"HOW MANY PLAYERS(2-5)",I:IF I<2 OR I>5 THEN 50
55 RANDOMIZE
60 NP=I:IF INT(I)<>I THEN 50 ELSE PRINT CHR$(12).FOR A=1 TO I:C(A)=1500:NEXT A
70 PRINT "PLAYER";T
80 IF P(T)=11 THEN 1540
90 PRINT "HIT SPACE BAR TO ROLL DICE"
100 Z$=INPUT$(1):IF Z$="M" THEN GOSUB 1630:GOTO 100
110 IF Z$=" " THEN PRINT " OK":PRINT P(T):GOTO 120 ELSE 100
120 GOSUB 4000:X=YR:GOSUB 4000:Y=YR:W=X+Y:PRINT X,Y:P(T)=P(T)+W:IF P(T)<54
    OR P(T)>40 THEN 130:ELSE P(T)=P(T)-40:C(T)=C(T)+200:IF P(T)=1 THEN
    PRINT "YOU HAVE PASSED GO"
130 IF S=2 AND X=Y THEN PRINT "THAT WAS THREE TIMES IN A ROW NOW YOU GO TO
    JAIL":S=0:X=1:Y=2:P(T)=11:GOTO 310
140 M=P(T)
150 GOTO 990
160 IF A(P(T))=0 THEN 170 ELSE 260
170 PRINT "DO YOU WANT TO BUY IT FOR";N;"DOLLARS"
180 A$=INPUT$(1):IF A$="N" THEN 310
190 IF A$="Y" THEN 210 ELSE IF A$="M" THEN GOSUB 1630:GOTO 180
200 GOTO 180
210 A(P(T))=T:C(T)=C(T)-N
220 IF M=6 OR M=16 OR M=26 OR M=36 THEN Q(T)=Q(T)+1
230 PRINT "OK, IT'S YOURS"
240 GOTO 310
250 GOTO 2210
260 IF A(P(T))=T THEN 310 ELSE GOSUB 1890
270 IF MO(P(T)) THEN PRINT "PLAYER";A(P(T));"HAS MORTGAGED THAT PROPERTY"
    :GOTO 310

```

```

280 IF A(P(T))<>T THEN PRINT "PAY",INT(N*U),"DOLLARS TO PLAYER";A(P(T))
290 C(A(P(T)))=C(A(P(T)))+INT(N*U)
300 C(T)=C(T)-INT(N*U)
310 IF C(T)<1 THEN PRINT "IF I WERE YOU I WOULD MORTGAGE SOME PROPERTY YOU
 HAVE RUN OUT OF MONEY."
320 PRINT "WHAT NEXT (1)--CONTINUE GAME"
321 PRINT " (2)--MONEY"
322 PRINT " (3)--PROPERTY"
323 PRINT " (4)--HOUSES/HOTELS"
324 PRINT " (5)--BUY/SELL (PROPERTY)"
325 PRINT " (6)--MORTGAGE"
330 H$=INPUT$(1)
340 ON VAL(H$) GOTO 1430,1020,1080,1720,2310,2900
350 GOTO 330
360 GOTO 330
370 PRINT "* * GO * *"
380 PRINT "YOU COLLECT $200"
390 GOTO 310
400 PRINT "MEDITERRANEAN AVENUE":N=60:GOTO 160
410 GOTO 870
420 PRINT "BALTIC AVENUE":N=60:GOTO 160
430 PRINT "INCOME TAX CHOOSE ONE(1)--10%(2)--$200"
440 A$=INPUT$(1)
450 IF A$="1" THEN 490 ELSE IF A$="2" THEN 480
460 IF A$="M" THEN GOSUB 1630
470 GOTO 440
480 C(T)=C(T)-200:F=F+200:GOTO 310
490 F=F+INT(C(T)/10):C(T)=INT(9*(C(T)/10)):GOTO 310
500 PRINT "READING RAILROAD":N=200:GOTO 160
510 PRINT "ORIENTAL AVENUE":N=100:GOTO 160
520 GOTO 910
530 PRINT "VERMONT AVENUE":N=100:GOTO 160
540 PRINT "CONNECTICUT AVENUE":N=120:GOTO 160
550 PRINT "VISITING JAIL":GOTO 310
560 PRINT "ST. CHARLES PLACE":N=120:GOTO 160
570 PRINT "GENERAL ELECTRIC":N=150:GOTO 160
580 PRINT "STATES AVENUE":N=140:GOTO 160
590 PRINT "VIRGINIA AVENUE":N=160:GOTO 160
600 PRINT "PENNSYLVANIA RAILROAD":N=200:GOTO 160
610 PRINT "ST. JAMES PLACE":N=180:GOTO 160
620 GOTO 870
630 PRINT "TENNESSEE AVENUE":N=180:GOTO 160
640 PRINT "NEW YORK AVENUE":N=200:GOTO 160
650 PRINT "FREE PARKING":PRINT "YOU GET";F;"DOLLARS":C(T)=C(T)+F.F=0:GOTO 310
660 PRINT "KENTUCKY AVENUE":N=220:GOTO 160
670 GOTO 910
680 PRINT "INDIANA AVENUE":N=220:GOTO 160
690 PRINT "ILLINOIS AVENUE":N=240:GOTO 160
700 PRINT "B/O RAILROAD":N=200:GOTO 160
710 PRINT "ATLANTIC AVENUE":N=260:GOTO 160
720 PRINT "VENTNOR AVENUE":N=260:GOTO 160
730 PRINT "WATER WORKS":N=150:GOTO 160
740 PRINT "MARVIN GARDENS":N=260:GOTO 160
750 PRINT "GO DIRECTLY TO JAIL":P(T)=11:JM(T)=0:X=1:Y=2:GOTO 310
760 PRINT "PACIFIC AVENUE":N=300 GOTO 160
770 PRINT "NORTH CAROLINA AVENUE":N=300:GOTO 160
780 GOTO 870
790 PRINT "PENNSYLVANIA AVENUE":N=320:GOTO 160
800 PRINT "SHORT LINE RAILROAD":N=200 GOTO 160
810 GOTO 910
820 PRINT "PARK PLACE":N=350:GOTO 160
830 PRINT "LUXURY TAX PAY $75":F=F+75.C(T)=C(T)-75:GOTO 310

```

```

840 PRINT "BOARDWALK":N=400:GOTO 160
850 IF M<>12 AND M<>32 AND M<>34 THEN 860 ELSE M=25:RETURN
860 IF M<>13 AND M<>33 AND M<>36 THEN RETURN ELSE M=24:RETURN
870 PRINT " * * COMMUNITY CHEST * *":GOSUB 4000:A=10*(RND(Y)):A=INT(A*10)
:GOSUB 4000:C=RND(Y):C=INT(C*10)
880 IF C<9 THEN 900
890 PRINT "YOU GET";A;"DOLLARS":C(T)=C(T)+A:GOTO 310
900 PRINT "YOU LOSE";A;"DOLARS":C(T)=C(T)-A:F=F+A:GOTO 310
910 GOSUB 4000:A=INT(RND(Y*10))
920 PRINT "CHANCE"
930 ON A GOTO 930,960,970,950,960,980,940
940 PRINT "GO DIRECTLY TO JAIL":P(T)=11:X=1:Y=2:JM(T)=0:GOTO 310
950 GOSUB 4000:A=RND(Y):B=10*A:PRINT "YOU GET";B;"DOLLARS":C(T)=C(T)+B
:GOTO 310
960 GOSUB 4000:A=RND(Y):A=A*10.C(T)=C(T)-A:F=F+A:PRINT "YOU LOSE";A;"DOLLARS"
:GOTO 310
970 PRINT "ADVANCE TO GO":P(T)=1:C(T)=C(T)+200:GOTO 310
980 PRINT "GET OUT OF JAIL FREE":G(T)=G(T)+1:GOTO 310
990 ON M GOTO 370,400,410,420,430,500,510,520,530,540,550,560,570,580,590
,600,610,620,630,640,650,660,670,680,690,700,710,720,730,740,750,760
,770,780,790,800,810,820,830,840
1000 M=M-40:IF M<1 THEN M=M+40 ELSE P(T)=M
1010 GOTO 990
1020 PRINT CHR$(12):PRINT "PLAYER","AMOUNT OF MONEY":IF C(1)>0 THEN PRINT
"1",C(1)
1030 IF C(2)>0 THEN PRINT "2",C(2)
1040 IF C(3)>0 THEN PRINT "3",C(3)
1050 IF C(4)>0 THEN PRINT "4",C(4)
1060 IF C(5)>0 THEN PRINT "5",C(5)
1070 GOTO 310
1080 PRINT CHR$(12): PRINT A(2),"MEDITERRANEAN AV.":IF MO(2) THEN PRINT "*"
:ELSE PRINT
1090 PRINT A(4),"BALTIC AV."R(1),,:IF MO(4) THEN PRINT "*" ELSE PRINT
1100 PRINT:PRINT A(7),"ORIENTAL AV.",,:IF MO(7) THEN PRINT "*" ELSE PRINT
1110 PRINT A(9),"VERMONT AV.",,:IF MO(9) THEN PRINT "*" ELSE PRINT
1120 PRINT A(10),"CONNECTICUT AV.";R(2),,:IF MO(10) THEN PRINT "*" ELSE PRINT
1130 PRINT:PRINT A(12),"ST.CHARLES PLACE",,:IF MO(12) THEN PRINT "*" ELSE PRINT
1140 PRINT A(14),"STATES AV.",,:IF MO(14) THEN PRINT "*" ELSE PRINT
1150 PRINT A(15),"VIRGINIA AV."R(3),,:IF MO(15) THEN PRINT "*" ELSE PRINT
1160 PRINT:GOSUB 1390
1170 PRINT A(17),"ST. JAMES PLACE",,:IF MO(17) THEN PRINT "*" ELSE PRINT
1180 PRINT A(19),"TENNESSEE AV.",,:IF MO(19) THEN PRINT "*" ELSE PRINT
1190 PRINT A(20),"NEW YORK AV"R(4),,:IF MO(20) THEN PRINT "*" ELSE PRINT
1200 PRINT: PRINT A(22),"KENTUCKY AV.",,:IF MO(22) THEN PRINT "*" ELSE PRINT
1210 PRINT A(24),"INDIANA AV.",,:IF MO(24) THEN PRINT "*" ELSE PRINT
1220 PRINT A(25),"ILLINOIS AV."R(5),,:IF MO(25) THEN PRINT "*" ELSE PRINT
1230 PRINT: PRINT A(27),"ATLANTIC AV.",,:IF MO(27) THEN PRINT "*" ELSE PRINT
1240 PRINT A(28),"VENTNOR AV.",,:IF MO(28) THEN PRINT "*" ELSE PRINT
1250 PRINT A(30),"MARVIN GARDENS"R(6),,:IF MO(30) THEN PRINT "*" ELSE PRINT
1260 PRINT:GOSUB 1390: PRINT A(32),"PACIFIC AV.",,:IF MO(32) THEN PRINT "*"
:ELSE PRINT
1270 PRINT A(33),"NORTH CAROLINA AV.",,:IF MO(33) THEN PRINT "*" ELSE PRINT
1280 PRINT A(35),"PENNSYLVANIA AV."R(7),,:IF MO(35) THEN PRINT "*" ELSE PRINT
1290 PRINT: PRINT A(38),"PARK PLACE",,:IF MO(38) THEN PRINT "*" ELSE PRINT
1300 PRINT A(40),"BOARD WALK"R(8),,:IF MO(40) THEN PRINT "*" ELSE PRINT
1310 PRINT: PRINT A(13),"GENERAL ELECTRIC",,:IF MO(13) THEN PRINT "*" ELSE PRINT
1320 PRINT A(29),"WATER WORKS",,:IF MO(29) THEN PRINT "*" ELSE PRINT
1330 PRINT:GOSUB 1390: PRINT A(6),"READING RAILROAD",,:IF MO(6) THEN PRINT "*"
:ELSE PRINT
1340 PRINT A(16),"PENNSYLVANIA RAILROAD",,:IF MO(16) THEN PRINT "*" ELSE PRINT
1350 PRINT A(26),"B/O RAILROAD",,:IF MO(26) THEN PRINT "*" ELSE PRINT
1360 PRINT A(36),"SHORT LINE RAILROAD",,:IF MO(36) THEN PRINT "*" ELSE PRINT

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1370 PRINT:GOTO 310
1380 GOTO 310
1390 PRINT:PRINT "HIT SPACE BAR TO CONTINUE"
1400 Z$=INPUT$(1)
1410 IF Z$=" " THEN 1420 ELSE 1400
1420 PRINT CHR$(12):RETURN
1430 IF C(T)>0 THEN 1450 ELSE NP=NP-1:X=1:Y=2:PRINT"PLAYER";T;"LOSES":GOSUB 2990
:FOR A=1 TO 100:NEXT A:FOR V=1 TO 40:IF A(V)=T THEN A(V)=0:MO(V)=0
1440 NEXT V:GOTO 1460
1450 IF X(>)Y THEN 1460 ELSE PRINT CHR$(12):PRINT "PLAYER";T;"HAD DCUBLES"
:S=S+1:GOTO 70
1460 S=0
1470 T=T+1:IF T>I THEN T=T-I
1480 IF NP=1 AND C(T)>0 THEN 1530
1490 IF C(T)>0 THEN PRINT CHR$(12):GOTO 70
1500 IF T>I THEN T=T-I
1510 IF C(T)<1 THEN T=T+1
1520 GOTO 1460
1530 PRINT "PLAYER";T;"WINS DO YOU WANT TO PLAY AGAIN (Y/N)":INPUT Y$
:IF LEFT$(Y$,1)="Y" THEN RUN ELSE END
1540 PRINT "YOU ARE IN JAIL(1)--ROLL DICE(2)--PAY $50(3)--GET OUT OF JAIL FREE
PICK ONE"
1550 Z$=INPUT$(1):IF Z$="M" THEN GOSUB 1630
1560 ON VAL(Z$) GOTO 1600,1580,1640
1570 GOTO 1550
1580 D=0:C(T)=C(T)-50:P(T)=11
1590 GOTO 310
1600 IF JM(T)<>3 THEN JM(T)=JM(T)+1 ELSE PRINT "YOU CAN ONLY ROLL THREE
TIMES":GOTO 1550
1610 GOSUB 4000:X=Y:GOSUB 4000:Y=Y: PRINT X,Y:IF X(>)Y THEN 310
1620 P(T)=11:X=1:Y=2:GOTO 310
1630 PRINT "YOU HAVE";C(T); "DOLLARS":RETURN
1640 IF G(T)>0 THEN P(T)=11:G(T)=G(T)-1:GOTO 310
1650 PRINT "YOU DONT HAVE ONE":GOTO 1550
1660 PRINT CHR$(12)
1670 PRINT "(1) MEDITERRANEAN AV. & BALTIC AV."
1680 PRINT "(2) ORIENTAL AV. VERMONT AV & CONNECTICUT AV."
1690 PRINT "(3) ST. CHARLES PLACE, STATES AV. & VIRGINIA AV."
1700 PRINT "(4) ST. JAMES PLACE, TENNESSEE AV. & NEW YORK AV."
1710 PRINT "(5) KENTUCKY AV. INDIANA AV. & ILLINOIS AV."
1720 PRINT "(6) ATLANTIC AV. VENTNOR AV. & MARVIN GARDENS"
1730 PRINT "(7) PACIFIC AV. N.CAROLINA AV. & PENNSYLVANIA AV"
1740 PRINT "(8) PARK PLACE & BOARDWALK"
1750 A$=INPUT$(1)
1760 IF A$="1" OR A$="3" THEN H=2 ELSE H=3
1770 IF A$="1" OR A$="2" OR A$="3" OR A$="4" OR A$="5" OR A$="6" OR A$="7"
OR A$="8" THEN RETURN ELSE 1750
1780 PRINT CHR$(12):PRINT "WHAT ARE YOU GOING TO BUY(1) HOUSE(2) HOTEL"
1790 Z$=INPUT$(1):IF Z$="1" THEN 1800 ELSE IF Z$="2" THEN 1840 ELSE 1790
1800 GOSUB 1660:GOSUB 1860:IF B=1 THEN 1810 ELSE PRINT "YOU DONT OWN ALL
OF THEM":GOTO 310
1810 R(L)=R(L)+1:IF R(L)=5 THEN PRINT "YOU ALREADY HAVE 4 HOUSES ON THEM"
:R(L)=4:GOTO 310
1820 IF R(L)=6 THEN PRINT "YOU HAVE HOTELS THERE":R(L)=5
1830 PRINT "HOUSES COST $100 DOLLARS EACH, FOR",H;"HOUSES IT WILL COST $";
:H=H*100: PRINT H:C(T)=C(T)-H:GOTO 310
1840 GOSUB 1660:GOSUB 1880:IF B=1 THEN 1850 ELSE PRINT "YOU DONT OWN THEM"
:GOTO 310
1850 IF R(L)=5 THEN PRINT "YOU ALREADY HAVE HOTELS THERE":GOTO 310
1860 IF R(L)=4 THEN 1870 ELSE PRINT "YOU HAVE TO HAVE 4 HOUSES":GOTO 310
1870 R(L)=5:PRINT "HOTELS COST $200 EACH":H=H*200:C(T)=C(T)-H:GOTO 310
1880 ON VAL(A$) GOTO 2050,2070,2090,2110,2130,2150,2170,2190

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1890 FOR K=1 TO I+1:IF M(>2 AND M(>4 THEN 1900 ELSE IF A(2)=K AND A(4)=K THEN
    U=1:GOTO 2010
1900 IF M(>13 AND M(>29 THEN 1910 ELSE IF A(13)=K AND A(29)=K THEN U=(10*(X+Y))
    :N=1:RETURN
1910 IF M(>7 AND M(>9 AND M(>10 THEN 1920 ELSE IF A(7)=K AND A(9)=K AND A(10)=K
    THEN U=2:GOTO 2010
1920 IF M(>12 AND M(>14 AND M(>15 THEN 1930 ELSE IF A(12)=K AND A(14)=K AND
    A(15)=K THEN U=3:GOTO 2010
1930 IF A(P(T))<K THEN 1950 ELSE IF M(>6 AND M(>16 AND M(>26 AND M(>36
    THEN 1950 ELSE IF Q(K)=2 THEN U=.5 ELSE IF Q(K)=3 THEN U=1 ELSE IF Q(K)=4
    THEN U=2 ELSE IF Q(K)=1 THEN U=.25 ELSE 1950
1940 RETURN
1950 IF M(>17 AND M(>19 AND M(>20 THEN 1960 ELSE IF A(17)=K AND A(19)=K
    AND A(20)=K THEN U=4:GOTO 2010
1960 IF M(>22 AND M(>24 AND M(>25 THEN 1970 ELSE IF A(22)=K AND A(24)=K
    AND A(25)=K THEN U=5:GOTO 2010
1970 IF M(>27 AND M(>28 AND M(>30 THEN 1980 ELSE IF A(27)=K AND A(28)=K
    AND A(30)=K THEN U=6:GOTO 2010
1980 IF M(>32 AND M(>33 AND M(>35 THEN 1990 ELSE IF A(32)=K AND A(33)=K
    AND A(35)=K THEN U=7:GOTO 2010
1990 IF M(>38 AND M(>40 THEN 2000 ELSE IF A(38)=K AND A(40)=K THEN U=8
    :GOTO 2010
2000 NEXT K:U=.25:RETURN
2010 M=U:IF R(M)=5 THEN U=2
2020 IF R(M)>-1 AND R(M)<4 THEN U=(R(M)*.25)+.25
2030 IF R(M)=4 THEN U=1.5
2040 RETURN
2050 IF A(2)=T AND A(4)=T THEN B=1:L=1
2060 RETURN
2070 IF A(7)=T AND A(9)=T AND A(10)=T THEN B=1:L=2
2080 RETURN
2090 IF A(12)=T AND A(14)=T AND A(15)=T THEN B=1:L=3
2100 RETURN
2110 IF A(17)=T AND A(19)=T AND A(20)=T THEN B=1:L=4
2120 RETURN
2130 IF A(22)=T AND A(24)=T AND A(25)=T THEN B=1:L=5
2140 RETURN
2150 IF A(27)=T AND A(28)=T AND A(30)=T THEN B=1:L=6
2160 RETURN
2170 IF A(32)=T AND A(33)=T AND A(35)=T THEN B=1:L=7
2180 RETURN
2190 IF A(38)=T AND A(40)=T THEN B=1:L=8
2200 RETURN
2210 ON H GOTO 2220,2230,2240,2250,2260,2270,2280,2290
2220 H=5:GOTO 2300
2230 H=3:GOTO 2300
2240 H=2:GOTO 2300
2250 H=6:GOTO 2300
2260 H=8:GOTO 2300
2270 H=7:GOTO 2300
2280 H=1:GOTO 2300
2290 H=4
2300 IF R(H)=5 THEN 310 ELSE P=110:C(T)=C(T)-100:R(H)=R(H)+1:GOSUB 850:GOTO 310
2310 G=0:PRINT CHR$(12)
2320 L=0:PRINT "PLAYER TO BUY"
2330 GOSUB 2980:D=VAL(A$):IF D>5 OR D<1 OR C(D)<1 THEN 2330
2340 PRINT "PLAYER TO SELL"
2350 GOSUB 2980:E=VAL(A$):IF E<1 OR E>5 OR C(E)<1 THEN 2350
2360 IF E>1 OR E<1 THEN 2340
2370 IF E=D THEN 2320
2380 GOSUB 2390:GOTO 2720
2390 PRINT CHR$(12):IF E=A(2) THEN PRINT "2 MEDITERRANEAN AV":L=L+1

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2400 IF E=A(4) PRINT "4 BALTIC AV":L=L+1
2410 IF E=A(7) PRINT "7 ORIENTAL AV":L=L+1
2420 IF E=A(9) PRINT "9 VERMONT AV":L=L+1
2430 IF E=A(10) PRINT "10 CONNECTICUT AV":L=L+1
2440 IF E=A(12) PRINT "12 ST. CHARLES PLACE":L=L+1
2450 IF E=A(14) PRINT "14 STATES AV":L=L+1
2460 IF E=A(15) PRINT "15 VIRGINIA AV":L=L+1
2470 IF E=A(17) PRINT "17 ST. JAMES PLACE":L=L+1
2480 IF E=A(19) PRINT "19 TENNESSEE AV":L=L+1
2490 IF E=A(20) PRINT "20 NEW YORK AV":L=L+1
2500 IF E=A(22) PRINT "22 KENTUCKY AV":L=L+1
2510 IF E=A(24) PRINT "24 INDIANA AV":L=L+1
2520 GOSUB 2800
2530 IF E=A(25) PRINT "25 ILLINOIS AV":L=L+1
2540 IF E=A(27) PRINT "27 ATLANTIC AV":L=L+1
2550 IF E=A(28) PRINT "28 VENTNOR AV":L=L+1
2560 GOSUB 2800: IF E=A(30) THEN PRINT "30 MARVIN GARDENS":L=L+1
2570 IF E=A(32) PRINT "32 PACIFIC AV":L=L+1
2580 IF E=A(33) PRINT "33 NORTH CAROLINA AV":L=L+1
2590 GOSUB 2800
2600 IF E=A(35) PRINT "35 PENNSYLVANIA AV":L=L+1
2610 IF E=A(36) PRINT "36 PARK PLACE":L=L+1
2620 IF E=A(40) PRINT "40 BOARD WALK":L=L+1
2630 GOSUB 2800
2640 IF E=A(6) PRINT "6 READING RAILROAD":L=L+1
2650 IF E=A(16) PRINT "16 PENNSYLVANIA RAILROAD":L=L+1
2660 IF E=A(26) PRINT "26 B/O RAILROAD":L=L+1
2670 IF E=A(36) PRINT "36 SHORT LINE RAILROAD":L=L+1
2680 GOSUB 2800
2690 IF E=A(13) PRINT "13 GENERAL ELECTRIC":L=L+1
2700 IF E=A(29) PRINT "29 WATER WORKS":L=L+1
2710 RETURN
2720 PRINT "ENTER '0' TO EXIT"
2730 INPUT "PROPERTY #";V: IF V=0 THEN PRINT CHR$(12):GOTO 310
2740 IF A(V)<>E THEN PRINT "PLAYER";E;"DOSE NOT OWN IT":GOTO 2320
:ELSE IF MO(V) THEN PRINT "YOU CAN'T SELL MORTGAGED PROPERTY":GOTO 2320
2750 INPUT "COST";G: IF C(D)-G<1 THEN PRINT "YOU CAN'T BUY PROPERTY FOR MORE
MONEY THAN YOU OWN."
2752 PRINT "PERHAPS IF YOU MORTGAGE SOMETHING":GOTO 2320
2760 IF V=6 OR V=16 OR V=26 OR V=36 THEN Q(E)=Q(E)-1:G(D)=G(D)+1
2770 A(V)=D: C(D)=C(D)-G: C(E)=C(E)+G
2780 PRINT "ANY MORE SALES"
2790 GOSUB 2980: IF A$="Y" THEN 2320 ELSE IF A$="N" THEN 310 ELSE 2790
2800 IF L>10 THEN 2820
2810 RETURN
2820 L=0:PRINT "HIT SPACE TO CONTINUE"
2830 H$=INPUT$(1): IF H$=" " PRINT CHR$(12): RETURN
2840 GOTO 2830
2850 L=0:PRINT "WHICH PLAYER TO MORTGAGE"
2860 GOSUB 2980: E=VAL(A$): IF E<1 OR E>1 THEN 2860 ELSE GOSUB 2390
2870 PRINT "ENTER '0' TO EXIT"
2880 INPUT "PROPERTY #";V: IF V=0 THEN 310 ELSE IF A(V)<>E,PRINT "YOU DONT
OWN IT":GOTO 2900: ELSE RESTORE: FOR A=1 TO V: READ B:NEXT :C(E)=C(E)+B
:MO(V)=-1: IF V=6 OR V=16 OR V=26 OR V=36 THEN Q(E)=Q(E)-1
2890 GOTO 310
2900 PRINT "(1) MORTGAGE(2) UNMORTGAGE"
2910 GOSUB 2980: IF A$="1" THEN 2850 ELSE IF A$="2" THEN 2920 ELSE 2910
2920 PRINT "WHICH PLAYER TO UNMORTGAGE"
2930 GOSUB 2980: E=VAL(A$): IF E<1 OR E>1 THEN 2930 ELSE GOSUB 2390
2940 PRINT "ENTER '0' TO EXIT": INPUT "PROPERTY #";V: IF V=0 THEN 310
ELSE IF A(V)<>E,PRINT "YOU DONT OWN IT":GOTO 2900 ELSE IF MO(V) RESTORE
:FOR B=1 TO V: READ A:NEXT :C(E)=C(E)-A:MO(V)=0: ELSE PRINT "IT'S NOT
MORTGAGED":GOTO 2920

```

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2950 IF V=6 OR V=16 OR V=26 OR V=36 THEN Q(E)=Q(E)+1
2960 DATA 0,30,0,30,0,100,50,0,50,60,0,70,125,70,80,100,90,0,90,100,0,110,0
,110,120,100,130,130,125,140,0,150,150,0,160,100,0,175,0,200
2970 GOTO 310
2980 A$=INPUT$(1):IF A$="" THEN 2980 ELSE RETURN
2990 RESTORE:FOR Z=1 TO 40:READ B:NEXT :FOR Z=1 TO 8:IF R(Z)<>0 THEN READ B
:IF A(B)=T THEN R(Z)=0
3000 DATA 2,7,12,17,22,27,32,36
3010 NEXT :RETURN
3020 DATA 0,0,110,0,110,1
3030 DATA 0,100,1
3035 REM =====
3040 REM THE FOLLOWING ARE ONLY RANDOM NUMBER CHECKING
3050 REM ROUTINES 4000 TO 4060 ARE USED AS A SUBROUTINE
3060 REM IN THE PROGRAM. 5000 - IS NOT USED BY THE PROGRAM.
4000 Y=0
4020 FOR IR=1 TO 6
4030 YR=RND(6):YR=INT(YR*10):IF YR=>7 THEN I=3:GOTO 4050
4040 IF YR<=0 THEN 4020
4050 NEXT IR
4055 IF YR=>7 THEN I=0:YR=0:GOTO 4020
4060 RETURN
4070 REM =====
5000 RANDOMIZE(678):GOSUB 4000:X=YR:GOSUB 4000:Y=YR:W=X+Y
5010 PRINT X,Y,W;" RUN DONE"
5020 GOTO 5000

```

This completes the listing for Monopoly. As you can see from some of the coding, it would be most wise for it to remain in Exidy Disk extended basic.

PART II THE PIO (input)

Last month we configured the PIO for output from the 50 pin connector. First to clear up one possible ambiguity from last month. Both pin 4 of the PIO and pin 4 of the expansion connector must be connected to ground.

This month you will learn how to input Data, connect multiple PIO's and I'll suggest a few applications.

In order to get input into the Sorcerer from the PIO you must first properly clock pin 8 of the expansion connector. This is the Data Bus direction pin. Follow the diagram in Fig. 1 to achieve this clocking.

In the INPUT mode the PIO works in this manner. When strobe goes low the PIO loads the Data on its port lines into a holding buffer. When a RD and a IORG appear simultaneously, the data in the buffer goes on the data bus, then the READY line goes low. You must strobe data into the PIO before reading it. This strobing can be done by the periferal or M1 may be connected to STB and whatever is on the port lines at the time of the RD will be given to the CPU. This method is useful when reading status ports or a bank of switches.

If your using the PIO under interrupt control the interrupt will be generated when STB goes low. Caution: Do not use interrupt mode 0 as this causes problems in most Sorcerers. Use mode 2, its the most versatile.

To connect multiple PIO's, many types of decoder chips may be used. The one used in fig 2 can handle 4 PIO's. With suitable decoding over 200 PIO's could be connected to the Sorcerer. Using the set up in fig. 1 Port numbers are as follows.

```

#1 00,01,02,03 1
#2 40,41,42,43 1 ALL HEX
#3 80,81,82,83 1
#4 D0,D1,D2,D3 1

```

To program a PIO for input in Basic:

10 OUT 92,7 :REM CLEAR INTERRUPT

20 OUT 42.79:REM PROGRAM PORT 'A' FOR INPUT

30 A=INP(40):REM DISCARD INITIAL DATA TO BRING RDY LINE LOW

Now any variable = INP(40) will contain the data which has been strobed onto the port lines.

A good text is indispensable in understanding how the PIO works. This short article is meant mainly to tell you how to connect the PIO to the Sorcerer.

Some application possibilities are: parallel to parallel data transfers between two computers (16K in less than 1 second). Extra peripherals, reading switching banks, interrupt driven keyboards, remote control, remote sensing, etc...

Next month the first of a series on the SIO (Serial I/O), anyone for 19.2 Kilobaud transfers.

Fig. 1

INVERTERS 74LS04

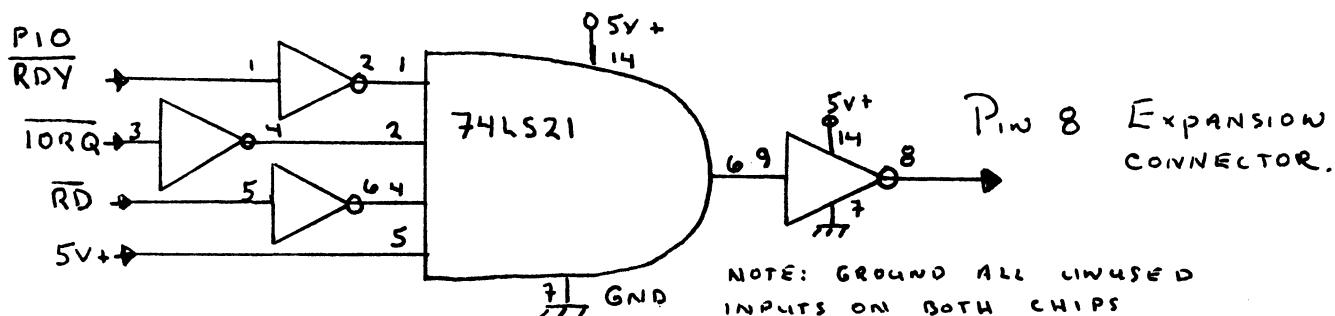


Fig. 2

Expansion Connector

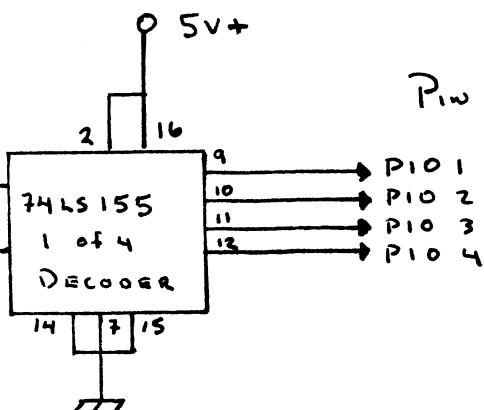
P.1 ~ #

35

1

38

14



P_{10.5} or P_{10.5}

Membership Application Form

Covering Jan. to Dec. 1982

Membership to the group is not restricted to the TORONTO area. All persons willing to participate are invited to join.

As a member of the Sorcerer Users' Group (Toronto), I enclose the annual membership fee and agree to the following Terms.

1. That I will not, without the authorization of the board of directors, represent myself or take any action as agent, or representative or become spokesperson of the group.

2. That I will not use any software obtained from the SUGT library for any commercial purpose or financial gain. The library shall be available to me should I wish to obtain programs donated by other members. These programs shall not be distributed without the owners consent and/or the consent of the board of executive officers.

3. That I have the right to vote for the officers and directors of the organization at the annual general meeting.

4. That any breach of the above conditions and any other restrictions that the Officers of the Club may invoke in the future on my part may result in suspension or termination of my membership without refund.

Annual Membership Rates: (Jan - Dec)

Canadian - \$15.00 Cdn - PLUS \$6.00 Postage
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NAME (print):
ADDRESS:
CITY:
POSTAL CODE:
TELEPHONE: Res. Bus.

Payments enclosed (membership): Library tape/s: Vol 1 or 2

Signature:

Please list the type of equipment you are using etc...

Sorcerer size: 8... 16... 32... 48... other..... \$100... Graph board....

Disk system - Micropolis.... Discus.... Exidy.... other... Size.....

Other Equipment
.....

If you belong to any other Sorcerer Users' Group please list it below.

.....