Treasurer's Report

by Greg Leitner
July 1998

I wasn't looking forward to the June meeting due to the sudden death of our past SPACE President, Don Langford. I only knew Don from the Club, but I really enjoyed talking and working with him the last few years. Don was very easy going and he had the perfect personality to be our Club President. I will fill in as President through the Summer months and then we will need to call for a formal election of the positions that are now open. We need nominations for President and also for Vice-President. In the mean time please be patient with me and help me out in whatever way you can.

Another sad note at the June meeting. I don't know if Ray talked to everyone about this at the meeting, but he came to me after the meeting was over and told me that this was his last meeting with us. He indicated that he may be back some time when we have an auction because he has a lot of things he may want to sell or donate. We will all miss Ray very much. Good luck Ray.

Since Glen could not make the June meeting, we did not have any Dom sales or renewal of memberships. Our expenses for June were for the May and June newsletter and the flowers I ordered on behalf of SPACE for Don's wake. We did have $21.00 in receipts due to sales of ST hardware donated by LR Data and a donation to the Club for the flowers. The total receipts came to $21.00 and the newsletter expense was $22.48. Since I have not yet been billed for the flowers I have not taken the money From the Treasury and our balance shows little change from last month. Our bank balance is now $1006.27.

I want to let all our members know that next month is our annual birthday meeting and this time since our Club is doing so well financially, we decided at the June meeting that we would have a pizza party instead of a pot luck. Some members will bring desserts and paper plates etc. and I will provide the pop. The Club will pick up the tab for the pizza.

Now more than ever the Club needs the support from its members. I am not talking just financially, I mean more than anything your presence at the meetings. I don't want all the decision making to come from just a few members that come every month. You all pay your dues and you all have an equal share in the value of your Club. Please join us at the July meeting and let your voice be heard.

Scott fxom LR Data called me one day in May and told me that he was getting out of the repair business for

Atari ST's and if the Club was interested he would donate all the ST hardware to the Club in the hopes that we could make some money on the auction. He really enjoyed the many years as a member' of MAST and says he is really going to miss his Atari connections. I have picked up the ST hardware and I will be bringing a lot of it to the meeting in July so that the members can get an idea of what there is and what interest they may have at the auction in August.
Until next month then.

Secretary's Report
by Brian Little
July 1998

Still not receiving any Minutes from our Secretary! We May Need A New Secretary?

ST Hacker
By : Brian G. Little

As I sit here a few days before the June SPACE meeting, I have taken a new look upon my life and it's meanings. The past month since our last meeting has, shall I say, been very tragic. The worst part of it is when I opened my newest SPACE Newsletter only to find out about Don's sudden death. I was only left to ask "WHY". How could a man, a great man like Don die? Don didn't hurt anyone, he was always here for the Club and things really began to pick up lately. I knew from the moment Don took over as president that we were in for good times ahead. But now this. You are going to be missed around here Don. We'll never forget you.

On a more positive note, I just recently made my long awaited jump into the ST world. On June 5th, I gave a final bootup of Zebex before I traded my 800XL for a 520ST machine. I'm looking very forward to getting software at the june meeting and finding stuff like a color monitor so I can finally have a true Computer. Next month I'll begin telling you all about my adventures with th ST and possibly even start getting some new stuff for our ST library. Untill next month....... This is who we are.

Brian G. Little
SPACE Secretary

(What about getting the minutes of the meetings sent in for the Newsletter?   EDITOR)

The Following is some E-Mail from Michael Current:

Subj: Atari article: XF551 3.5" upgrade text
From: lenspencer@aol.com (Lenspencer)

Here is the text of the article by Bob Woolley on upgrading the XF551 to a 3.5" drive. This text is also available at ftp://members.aol.com/lenspencer/fxep/xf551.txt.

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Inside the XF551 Disk Drive›by Bob Woolley (SLCC) [Editorial notes by Len spencer]

It has been almost a year since I first got my hands on an XF551. Busy little hands... Of course, the first thing I did was to tear the thing apart to see how it was put together. And, maybe do a little "put"ing myself. As a result, I have made a few modifications that may be of interest to other XF551 owners. You will not be able to successfully make these changes unless you have reasonably decent electronic skills, so don't gamble with your new XF551 unless you know what you are doing. Most User Groups have skilled members that will be happy to guide you if you need help.

First

But, before I get caught up in details of the drive, I would like to clarify some points on the XF551. The drive IS double sided and can read and write in single, enhanced or double density. The "book" that comes with the drive is incorrect. MyDOS, SuperDOS and SpartaDOS can all format the drive as double sided and double density. Previous Atari drives did not use the INDEX hole on the diskette, which allowed us to flip the disk over and format the back of the media. The XF551 uses a standard, bone stock, IBM-style drive. It uses INDEX. It will not FORMAT the back of a diskette unless the disk jacket has two index holes. It WILL read and write to the back of any disk. Guaranteed! On side one, the tracks on the disk are written from the outer edge in, from 0 to 39. On side two, the tracks are written from the inner edge out. This allows us to read the first 40 tracks of a DSDD diskette on a SSDD drive. The second side is not backwards nor could it be read on a SS drive even if you changed it. The speed of the drive is NOT 288 RPM, the speed you are used to seeing, but 300 RPM, the industry standard. The XF551 compensates for the difference by using a clock frequency 4% (.33mhz) higher

than it should be. This will read and write the data in exactly the same place on the diskette as your 288 RPM drive, although programs that measure the speed of the drive will read 300 RPM.

Talking To The Drive

The XF551, as it comes from Atari, has the ability to format a diskette in any of three configurations: single density (SSSD-88K), 1050 density (SSED-127K) and double-sided, double density (DSDD-360K). The DSDD format has a standard skew (skew is the physical sequence of the sectors on the disk) and a high speed skew option available to the user. This extra skew layout allows faster data transfers on the SIO buss, much like the ICD Doubler upgrade on the 1050. For those of you interested in programming, the DSDD format SIO command is $23. For a high speed skew format in DSDD, you just need to turn on bit 7 for a value of $A3 (the SSSD and SSED formats do not have a high speed skew, although the drive will transfer data at high speed in those densities). To transmit data at high speed to and from the XF551, just set bit 7 of the command to "1" again (a get sector ($52) with bit 7 on is $D2). You must still send the command frame at the normal SIO rate ($28 in $D204) and then set $D204 to $10 for high speed operation during the data frame. The drive will also recognize the Put (and Get) Option Table command ($4F and $4E), which are similar to the Percom configuration table operations. Only bytes 4-8 are changed by the Put command, however, and only the three supported formats will be recognized. Even if you sent the Option Table a 512 byte sector size, you would only get 256 byte sectors. A number of the newest DOS versions (SpartaDOSX, SuperDOS 5.0, DOSXE...)now have XF551 support built in. Also, a file is available in Atari8 on CompuServe that will modify SpartaDOS 3.2D for the XF551 features (in DL3 - XF32D.BAS). Using any of these methods will transfer data almost twice as fast as DOS 2.0.

Into The Hardware.

The first thing you notice about the ICs in the drive is the one in a nice socket, the ROM. Makes it a lot easier to burn an EPROM (use a 2764) to make code change if you can just plug and unplug your devices. I didn't see the ROM source code printed anywhere, so I wrote a simple disassembler for the 8050 MPU used as the brains of the drive. [Some were manufactured with an 8040. It has the same 256 bytes working RAM as the 8050, but no built-in ROM. Apparently the internal ROM was never used, as the drive OS is on its own ROM elsewhere on the board. - L.S.] It was very nice when Atari used a 6507 (which uses 6502 OPCodes) in their drives but, no more. Everything Atari comes out with now seems to use a different chip and this 8050 stuff was a bear. Finally, I got most of the program logic worked out and designed some changes:

One upgrade that was available for the 1050 is a ROM change that will re-address the drive as D5: through D8:. This can be done on the XF551 ROM by altering location $0095 from $31 to $35 ($33 gives you a range of D3: to D6:, etc.). Having 360K is nice. Having 720K is even nicer. Putting a 720K, 3.5 inch drive in place of the stock drive is not too hard, so let's start with the ROM. There is a little bug in the code that allows the drive to start writing the track before it has reached operating speed. To remedy that, change $528 from $90 to $00, $C1D from $88 to $80 and $E25 from $88 to $80. [I have heard reports that this may be unnecessary, so you may or may not want to make the aforementined changes. I have had the problem, so better safe than sorry. - L.S.] The 720K drive has 80 tracks per side which requires you to change $680 from $28 to $50, $80F from $30 to $60 and $811 from $FD to $FA. A 3.5 inch drive uses a 3ms seek time -- change $53D from $00 to $03, $57B from $18 to $13, $9D1 from $08 to $03, and $B15 from $18 to $13. Finally, the 3.5s use write pre-compensation -- change $61D from $F6 to $F4, $621 from $F6 to $F4 and $D0D from $A2 to $A0. For a drive, I used a unit from JDR Microdevices (MF353B Mitsubishi) that plugs right into the 5.25 connectors and uses the same mountings as the larger drive. This simplifies the installation quite a bit. When you go to plug in the 3.5, you may notice that the 34 pin cable is too short. I de-soldered the connector and added a longer cable, but one hacker, Joe Wyks, managed to pry the top off of the board connector and crimp his new cable into place without soldering. [The latter was the method I used, as it is a little easier on the circuit board. L.S.] The power connector can be adapted with cables made for that purpose, if necessary. That's about all that's needed to run a 720K 3.5. Format a disk using SpartaDOS XINIT, option 7 (DS 80 tracks) and start filling it up! You now have 2880 DD sectors.

* * * * * * * OUT OF DATE INFORMATION * * * * *
Bob Woolley can be reached on CompuServe at [75126,3446] and is the editor of the SLCC Journal. We wish to warmly thank him for contributing this article and sharing his knowledge of the 8bit and the XF551 disk drive with us.
* *

Subj: semi-Atari news: JTS
Monday May 11, 4:00 pm Eastern Time
Company Press Release
SOURCE: JTS Corporation
JTS Announces Consent to Removal of Listing From the American Stock Exchange

SAN JOSE, Calif., May 11 /PR Newswire/--JTS Corporation (Amex: JTS), today announced that it is consenting to the removal of its Common Stock and 5 1/4% Debentures from the American Stock Exchange (AMEX).

This action became necessary because the Company no longer fully satisfies all the guidelines of the AMEX for

continued listing. The AMEX has advised that the last day for trading of the Company's securities on the AMEX will be Friday, May 22, 1998.

The Company expects that a market for its securities will develop over the counter following removal from the AMEX.

For further information, contact JTS Corporation at 166 Baypointe Parkway, San Jose, California, 95134. Phone: 408-468-1800 Fax: 408-468-1619.

Subj: Atari article: Writing ATARI DS/DD disks on PC
From: alumno20 <alumno20@li.urp.edu.pe>
Newsgroups: comp.sys.atari.8bit

Here are some notes which may prove useful, comparing ATARI and PC floppy disks.

Common densities in the AATARI 8-bit world are:

single density (SD), enhanced density (ED) and double density (DD). The standard disk size is 5,25", and though most drives are single-sided, there are others (mostly the latest ones) which are double-sided. SIngle and enhanced density use 128-byte sectors, DD uses 256-byte sectors. SD uses FM encoding, ED and DD use MFM.

Summarizing:

Density	sides	TPS	SPT	BPS	enc	total bytes	
SD	1	40	18	128	FM	92160	(90K)
ED	1	40	26	128	MFM	133120	(130K)
SS/DD	1	40	18	256	MFM	184320	(180K)
SS/DD	2	40	18	256	MFM	368640	(360K)

OTOH, the common densities in the PC world are:

single density (SD), double density (DD) and high density (HD). The satndard disk sizes are 5,25" and 3,5", though I haven't ever heard of any 3,5" SS/SD disks. Most drives today are double-sided, only in the first times there were single-sided SD 5,25" drives and DD 3,5" drives. SD used 256-byte sectors, both DD nad HD use 512-byte sectors. Again here, SD used FM encoding, DD and HD use MFM encoding. There's another density called quad density (QD), only common in 3,5" drives, which also uses 512-byte sectors and MFM encoding, but it hasn't become widespread. We must note that these sector sizes are just the standard ones, since the controller lets you format your disks in other custom sizes.

So, summarizing for the PC/DOS:

Density	size	sides	TPS	SPT	BPS	enc	total bytes	
SD	5,25"	1	40	9	256	FM	92160	(90K)
SS/DD	5,25"	1	40	9	512	MFM	184320	(180K)
SS/DD	5,25"	2	40	9	512	MFM	368640	(360K)
DS/HD	5,25"	2	80	15	512	MFM	1228800	(1.2M)
SS/DD	3,5"	1	80	9	512	MFM	368640	(360K)
SS/DD	3,5"	2	80	9	512	MFM	737280	(720K)
DS/HD	3,5"	2	80	18	512	MFM	1474560	(1.44M)

What else? Let's take a look at how the drive writes to the diskette. We'll analyze this from the point of view of the PC, since the interest here is in writing a program capable of reading/writing ATARI 8-bit disks using a PC 5,25" drive. Normally, the PC writes to a 360K disk in the following way: it begins from track 0 (outside) at side 0 (top), the continues with track 0, side 1 (bottom), the comes track 1, side 0, then track 1, side 1, until it finally reaches track 39 (innermost), side 1 (bottom). We end up with 720 sectors of 512 bytes each, numbered from 0 to 719. Of course, we can program the controller to use 18 sectors per track, each of 256 bytes instead, and they would be then numbered 0 to 1439. The formula for calculating the logical sector based on the sector, track and head is:

Lsec=(track*2+head)*18+sector

And the formulae for calculating the track, head and sector corresponding to a logical sector would be:

sector=Lsec mod 18
head=(Lsec div 18) mod 2
track=(Lsec div 18) div 2

The "Util"program, which reads/writes ATARI 8-bit SS/DD disks, reads and writes to the disk in the following way: It begins from track 0 (outside) at side 0 (top), then goes on with track 1, side 0, until it reaches track 39 (innermost), side 0 (top). But it also can read/write DS disks; it does this in the following way: The first (top) side is read like on a SS disk, then, after reaching track 39, side 0, it returns to track 0 (outermost), side 1 (bottom), and goes on with track 1, side 1, and so on until track 39, side 1. The formulae for the logical sectors in this case is:

Lsec=(head*40+track)*18+sector

And the formulae for calculating the track, head and sector corresponding to a logical sector would be:

sector=Lsec mod 18
track=(Lsec div 18) mod 40
head=(Lsec div 18) div 40

The problem here is, the ATARI 8-bit DS drives use a different method: after reading side 0, side 1 is read BACKWARDS, which doesn't only mean that the tracks are read starting by track 39, side 1 until reaching track 0, side 1, but also that the SECTORS in each track are read beginning from sector 17 and ending at sector 0. Don't ask me why. From the ATARI 8-bit point of view, a DS disk written using Util will have sectors 721-1440 reversed (let's also remember that ATARI 8-bit computers begin numbering sectors at 1 instead at 0). Although one can write a program to read and reverse those sectors, if you already had data on them, it may have been overwritten by Util. So what's needed is to change Util to write those sectors in the proper order. From the PC point of view, to properly write the sectors on an ATARI 8-bit diskette, we would have the formula:

Lsec=head*1439+[track*18+sector]*[1-2*head]

And the formulae for calculating the track, head and sector corresponding to a logical sector would be:

head=(Lsec div 18) div 40
track=[(Lsec div 18) mod 40]*(1-2*head)+39*head

sector=[Lsec mod 18]*(1-2*head)+17*head

Just as a sidenote: remember also that ATARI 8-bit computers write data in a way that's complementary to the PC; that is, it uses for a "1" the value the PC uses for a "0", and vice-versa. This can easily be solved by complementing the value after reading and before writing to disk.

So far, I haven't been able to decipher the source code from the Util program in order to patch it. The author's help -or anyone else's- would be greatly appreciated.

I came across this article the other day, while searching for info on the XF551 controller (the WD1772), and thought it may also be applied to the ATARI 8-bit computers. I also took a look at the XF551's tech specs, and that's what I found out:

Processor: 8040/8050AH at 8.3333MHz (docs say 18.33, but it's a mistake) Disk controller: WD 1772 02-02 (I opened my drives and looked at the complete code) SIO data rate:

normal: 19040bps (NTSC)/18866bps (PAL)
high speed: 38908bps(NTSC)/38553bps (PAL)

Rotaton rate: 300RPM

Power source: external power adapter, 9V AC, 31VA, 60Hz (NTSC)/50Hz (PAL)

Operating modes:	Single	Dual	Double Density
Number of sides	1	1	2
Total tracks	40	40	80
Sectors per track	18	26	18
Bytes per sector	128	128	256
Total bytes	92160	133120	368640
Encoding method	FM	MFM	MFM
Transfer rate	125000bps	250000bps	250000bps
Acces time: (maximum)			
track to track	40ms	40ms	40ms
motor start	1000ms	1000ms	1000ms

After checking the following article and comparing with the specs for the XF551, I began to think tht it could also apply to the XF551 for making it a HD drive. Read the following and then express you opinions. The original authors'names should appear down there within the text.

-----------[begin quote]-----------

Introduction and Notes for adding High density disk drives to the Atari ST

The first thing you must do, is to verify that your existing HDD controller IC is a suitable one for the modifications. The controller on the Atari ST is a Western Digital WD1772 and carries a suffix (usually) of 00-02 or 02-02. As it is explained in the following texts, the original chip is designed to run at 10MHz and only the 02-02 chip will handle the higher clock speed of 16MHz, so ensure that you have a compatible HD controller first.

There are no major problems with running two disk drives either one of each or two high density drives but a little jiggery pokery is required to get it all rolling properly. The type of HD drive you select will depend upon you but some are easier to work with than others - it is essential that you get a drive that will handle the full Shugart specs and not one of the (increasingly common) PC type HD drives that has limited functions. The HD drive MUST have the ability to send out the HD select signal on it's interface connector. The PC does not use this normally as the HD select is controlled by the PC host card and tells the drive what kind of disk is inserted (this is the reason that the PC can mess up a HD disk by formatting the media with the wrong data rate).

For full compatibility you'll need to gate the HD select signal with the drive select lines so that you can mix both high density and normal density drives on the same bus.

Some of the later series of HD drives have a pull-up on the HD select line that will stop you accessing the normal 720k drive as a second unit. This can be overcome by swapping jumpers (assuming you get a drive that can be configured properly) or by changing the pull-up to a higher value and arranging gates so that it is driven and held low for non high density disk access.

You may also experiance timing problems with some obscure makes of drive, so be careful to make sure you know what the drive unit you are buying can/can't do.

Finally, if you boot from the A: drive and you make this your high density one then be aware that you will need a small "autoboot" program to set the step rate BEFORE you can boot from a high density disk. This program MUST reside on the first track of the disk or the boot will fail for resons explained below

How it Works

Basically the 720k and 1.44 meg disks drives are compatible in as much as that they both have 2 sides and 80 tracks. Now the important difference is the speed at which they write to the media. With 720k disks, the data is written out by the drive at 250k bits/second - this is known as "double density" and uses MFM encoding. A high density drive uses exactly twice this speed at 500kb/s and hence, writes twice as much data to the media. This is layed down by the format program as 18 sectors (instead of 9 on a 720k) per track of 512 bytes per sector. This

faster rate is still MFM encoded and is known as "high density". There is yet a faster rate again at 1Mb/s that is used on the IBM machines and creates disks of 2.88 meg capacity but a new controller IC would be needed for this (anyway, the disks are too expensive yet) and it's known as "quad density" and there is an older standard known as "single density" which was half the data rate of the original 720k we discussed at 125Kb/s (remember the old CPM machines and things).

OK, you've swallowed all that (what you haven't....) now consider that since the physical interface is the same and only the data rate changes (a high density drive unit switches it's data rate up to 500kb/s when you plug in a disk with an extra hole) between 720k and 1.44 meg disks, it becomes easy to see that if we send the data at the same speed as the high density standard, then we can talk to high density media. How do we do this - easy, double the clock rate to the disk contoller chip. It's normally run at 8MHz, so run it now at 16 MHz and presto... you have your high density interface. You can pick up a 16MHz clock in the Atari from the video shifter.

One unfortunate side effect of doing this, to which I referred earlier was that since the data rate has changed and the speed doubled, then it now takes the HD controller chip half the time to carry out any operation than it did before. Now this means that effectively, the STEP rate of the disk drive (a function of the controller chip) is now halved from 3ms to 1.5ms (and I haven't yet found a drive that'll go this fast). So the problem when booting from a HD disk, is that you must load a little utility that will change the STEP rate (programmed by the operating system) to 6ms (which when clock doubled becomes 3ms).

Now, this utility has to be small enough to fit on track 0 otherwise the disk drive will try and step out to the second track at 1.5ms (which it won't do) and the drive goes out of sync. Quite a number of programs incorporate the ability to change step rates and a small program can be written to do the job (I have written such a small utility if anyone wants it).

Compatability

There are one or two commercial 720k disks that complain and refuse to load if tried in a converted machine with a 1.44 meg as drive A: and if you're a games freak then it is probably better that you make the HD unit, your B: drive to maintain compatibilty. Once written and formatted, TOS takes care of how many sectors per track there are and I have found no (serious) problems at all with two HD drives fitted to my Atari Mega 3. One last point to bear in mind is that a lot of (both commercial and PD) utilities were written to allow the use of 9, 10 or 11 sector formats, so these will not work with an 18 sector disk and any cleanup/repair/disk

doctors that can't handle HD media, will most probabyly foul things up for you and make an even worse mess - you have been warned.

Oh yes, forgot to mention you can handle 5.25" HD drives as well but you need to fit an external switch (the 5.25" HD doesn't have an HD select line OUT)

Happy hacking.....
Martin GW6HVA @ GB7OSP

Atari ST High Density Disk Drives - Part 2

```c
/* formath.c Formatter fuer High Density Disketten */
/* nur fuer angepasste Hardware! Floppycontroller und
Laufwerk */
/* muessen High-Density tauglich sein! */
/* Hartmut Semken, Lupsteiner Weg 67 1000 Berlin 37 */
/* hase@hase_1.mbx.sub.org or
hase@netmbx.mbx.sub.org */
/* 03-SEP-89 */

#include
#include
#include
#define SLEEPTIME 1    /* 1: Zeitschleife, 0: Taste */
#define BLANK (0xE5E5)
#define MAGIC (0x87654321L)
#define BUFSIZE (20*1024) /* Platz fuer mehr als 18
Sektoren... */
#define DEVICE 0      /* 0 = Floppy A, 1 = Floppy B  */
#define SIDES 2       /* je              */
#define SECTORS 18    /* nach            */
#define TRACKS 80     /*Belieben         */
#define TOTSEC (TRACKS * SIDES * SECTORS)
extern int errno;
main()?
    int track;
    int side;
    int status;
    short *bf;
    register char reply;
    short *middle;
    char buffer[512];
    printf("\033E\n");
    printf("Public Domain High Density Mini
Formatter\n");
    printf("von H. Semken\nDer Autor garantiert in
keiner Weise fr die
 Funktion\nDieses Programmes.\nBenutzung auf eigene
Gefahr.\n");
    printf("\n\n\n");
    printf("\007\033pFormatiere Diskette in Drive
%c\033q\n%d Seiten\n%d Sektoren
 pro Spur\n%d Spuren\n\n", (65+DEVICE), SIDES,
SECTORS, TRACKS);
    printf("Wirklich formatieren? ");
    fflush(stdout);
    if ((reply = Crawcin()) != 'y' && reply != 'Y' &&
reply != 'j' && reply
!= 'J')
 ?
        printf("Nein. Floppy nicht formatiert.\n");
        sleep(1);
        Pterm0();
    ?
    printf("Ja.\n");
    printf("Diskette einlegen; Taste drcken...");
    fflush(stdout);
    Crawcin();
    printf("\n");
    bf = malloc(BUFSIZE);
    for (track = TRACKS-1; track >= 0; track--) ?
        for (side = 0; side < SIDES; side++) ?
            printf("Formatiere Spur %d, Seite %d",
track, side);
            fflush(stdout);
            status = Flopfmt(bf, 0L, DEVICE,
SECTORS, track, side,
1, MAGIC, BLANK);
            if (status) ?
                middle = bf;
                printf("\t%d\n", status);
                while (*middle) ?
                    printf("\tDefekter Sektor %d\n",
*middle++);
                ?
            ? else ?
                printf("\tokay\r");
            ?
        ?
    ?
    printf("\n\nAlle Spuren formatiert\n");
    printf("Initialisiere Directory\n");
    for (track = 0; track < (BUFSIZE>>1); bf[track++] =
0);
    for (track = 0; track < 2;track++) ?
        for (side = 0; side < SIDES; side++)?
            if (status = Flopwr(bf, 0L, DEVICE, 1, track,
side, SECTORS)) ?
                errno = -status;
                perror("Write Error");
            ?
        ?
    ?
    Protobt(buffer, (long)Random(),3,0); /* Prototyp
Bootsector fr
                        * 80 * 2 * 9 Sektoren */
    /* Prototyp Bootsektor fr das neue Format anpassen
*/
    /* Bytes 19 und 20 enthalten die Sektoren pro Disk
*/
    /* unteres Byte von TOTSEC */
    buffer[19] = (char)(((TOTSEC>>8)<<8)~TOTSEC);
    /* oberes Byte von TOTSEC; es lebe das Intel int-
Format */
```

```c
    buffer[20] = (char)(TOTSEC>>8);
    buffer[24] = (char)SECTORS; /* Sektoren pro Spur
*/

    status = Flopwr(buffer, 0L, DEVICE, 1, 0, 0, 1);
    if (status) ?
        errno = -status;
        perror("Write Error (Bootsector)");
    ?
    status = Flopver(buffer, 0L, DEVICE, 1, 0, 0, 1);
    if (status) ?
        errno = -status;
        perror("Verify Error (Bootsector)");
    ?
    printf("Diskette in Laufwerk %c formatiert\n",
(65+DEVICE));
    sleep(1);
    Pterm0();
?

sleep(seconds)
int seconds;
#if SLEEPTIME
?
    clock_t t;
    for(t = clock();clock() < (t + CLK_TCK*seconds););
?
#else
?
    printf("Taste druecken\n");
    fflush(stdout);
    Crawcin();
?
#endif
```

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Dennis had stepped up into the top seat whet its founder
had died of a lethal overdose of brick wall, taken while
under the influence of a Ferrari and a bottle of tequila.
(Douglas Adams; the long dark teatime...)

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http://www.GeoCities.com/Hollywood/2645

Subj: Atari news: Hasbro Interactive Unveils its New
Centipede(TM) ActionGame
Thursday May 21, 1:15 pm Eastern Time
Company Press Release
SOURCE: Hasbro Interactive, Inc.
    Insects to Invade The Electronic Entertainment Expo as Hasbro
Interactive Unveils its New Centipede(TM)

Action Game

  BEVERLY, Mass., May 21 /PRNewswire/ -- Swarms of pesky spiders,
menacing fleas, mushroom-poisoning scorpions and the QueenPede
herself are waking up from their decade-long naps, reborn in Hasbro
Interactive's new Centipede action arcade game for the PC and video
game platforms. Based on the legendary Atari game of the 1980s, Hasbro
Interactive's new Centipede will delight nostalgic game players who
remember blasting away those irksome insects in the arcades and
challenge today's action gamers with its new high- powered 3D adventure
modes. Centipede will be Hasbro Interactive's first release from its recent

acquisition of the Atari assets from JTS Corporation [AMEX:JTS - news]
and is scheduled to ship this fall.
    ``We can't wait for our customers to take a look at our new Centipede
game at E3," said Tom Dusenberry, President of Hasbro Interactive. ``The
game play is a thrill ride and those insects never looked so good in their
new 3D worlds," added Dusenberry. ``We think Centipede will be one of
Hasbro Interactive's top-selling titles in '98."

The Story of Centipede...

    As the tale is told, every hundred years an eclipse occurs which causes
a metabolic metamorphosis in the insect kingdom, triggering the
awakening of the boss centipede, the QueenPede, and her mindful
minions -- the spiders, scorpions, and fleas. Their mission is to wreak
havoc on the nearby colony of Wee People. The Wee People, a peaceful
sort, must defend themselves against the insects and have built ``The
Shooter," a powerful vessel especially designed to defeat the creepy
crawlers. One very brave soul must man ``The Shooter" and this time the
faithful town bean counter, Wally, has been chosen to tackle this
daunting deed. Wally needs your help in his quest to defeat the
Centipede!! Caution -- the squeamish need not apply!

The Game Play

   In Hasbro Interactive's new Centipede game, players have two ways to
battle the bothersome bugs -- the Arcade mode and the Adventure mode.
In the Arcade mode, the designers of Centipede are modeling the
mechanics of the game so it will play exactly like the classic arcade game
that fans from the 80s remember -- but the Arcade mode will have a cool
3D perspective. Since the game play is based on the 80s version, the bugs
will behave exactly the same way they did in the original game --
centipedes are still winding toward the player, the fleas are still building
mushrooms, the scorpions are still poisoning the mushrooms and the
spiders...well, they are still as annoying as ever. The most important
element in this mode is, of course, to ascend the top ten list with the
highest score.
   In the Adventure mode, players can break out of the classic arcade-style
rectangular board interface and take on bugs face to face in six exciting
new 3D worlds. Following the story line, players must direct our unsung
hero Wally in his mission to exterminate the insects in these magical new
lands. In the new Centipede, there will be even more distasteful vermin to
conquer -- each one with unique battle powers.
   In addition to the new game play modes there will be new perspectives
that players can choose from including top down, third-person (over
Wally's shoulder), and first-person views. Players can switch their
perspective whenever they want to help them out of any precarious
situation! Centipede will be available this fall.
   Check out Centipede at E3 at Hasbro Interactive's booth #6616!
   Hasbro Interactive, Inc. is a leading all-family interactive games
publisher, formed in 1995 to bring to life on the computer the deep library
of toy and board games of parent company, Hasbro, Inc.(AMEX: HAS -
news). Hasbro Interactive has expanded its charter to include original and
licensed games for the PC, the PlayStation(TM) game console and for
multi-player gaming over the Internet. Headquartered in Beverly,
Massachusetts, Hasbro Interactive has offices in the U.K., France,
Germany, Japan and Canada. For additional information, visit Hasbro
Interactive's web site at: www.hasbro-interactive.com
   NOTE: Centipede is a trademark of Atari Interactive, Inc., a Hasbro
affiliate.

SPACE's 16th Birthday Party

The Club will be picking up the Tab for the PIZZA at the
next meeting, July 10th. Below is a list from the last
meeting of some of the items being brought to the
Birthday Party.

Greg Leitner	Pop
Mike Weist	Paper Plates & Napkins
William Malchow	Cookies & Crackers
Dennis Wold	Paper Plates & Forks
Fitzpatrick's	Cake
Lance Ringquist	Cookies

If you plan on attending, bring a treat or something else to
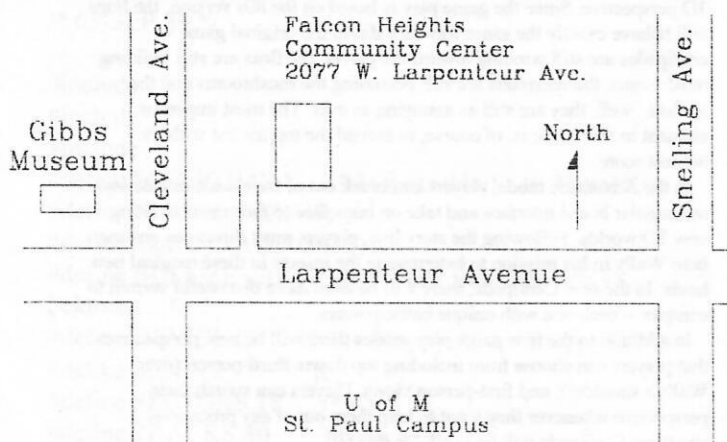share with the other Club Members.

CLUB OFFICIALS

President:	Greg Leitner (Temp)	455-6550
Vice President:	Greg Leitner	XXX-XXXX
Secretary:	Brian G. Little	XXX-XXXX
DOM Librarian:	Vacant	XXX-XXXX
Paper Librarian:	Vacant	XXX-XXXX
Software Librarian:	Vacant	XXX-XXXX
Membership Chairman:	Glen Kirschenmann	786-4790
SPACE Treasurer	Greg Leitner	455-6550
SPACE Newsletter Editor:	Michael Schmidt	757-4192

Saint Paul Atari Computer Enthusiasts (SPACE) meets on the second Friday of each month at 7:30 PM in the Falcon Heights Community Center at 2077 West Larpenteur Ave. Doors open at 7:00 PM.

Falcon Heights
Community Center
2077 W. Larpenteur Ave.

Gibbs Museum

Cleveland Ave.

Snelling Ave.

North

Larpenteur Avenue

U of M
St. Paul Campus

S.P.A.C.E.
P.O. Box 120016
New Brighton, MN 55112

SPACE BBS

BBS Phone: (612)-462-3680

Sysop: None

Co-sysop: Open Position

Supporting:

ATARI 8-Bit Computers

ATARI ST Computers

USA 32