Echo Mode (3 Line Mode)

The burner expects an echo of every byte. A complimented byte received indicates an error has occured.

Letters used in a Command A, Z, V, E, U, S, L, C, M, P, F, D I

Port Setup

9600 Baud
No parity
8 Data bits
1 stop bit
CS - ?
DS - ? - Ignore in
CD - ? 3 line mode.

* You may ignore these 3 lines but you must wire them correctly

LARGEST Prom - 64K ($FFFF) Currently - 16K ($4000)

NOTES

- ERRORS Are indicated by sending the compliment of the RCV'd byte followed by the addr (Hi byte/Lo byte), byte received, & Data byte as read

Commands

B ① Zap - send $F0 followed by the Data to be Zapped. (binary Data)

B ② Verify - send $F5 followed by the Data to be verified with the chip in the Zap socket. (Binary)

③ Verify Erase - send $F6

B ④ UPload - Send $F7 then send $40 for Master or $80 for clone socket then receive data (Binary)

B ⑤ Setup changes - send $F9 the starting address (hi/Lo), then the ending addr (hi/Lo).

B ⑥ Timing changes - send $FA the overzap byte, loopmax byte, then the delay time (hi/Lo).

B ⑦ Module Id Code - send $FB the receive Module ID, Beginning addr (hi/Lo), & Ending addr (hi/Lo).

H ⑧ Zap Motorola hex - Send $53 and your S1 Dump (Capital) S

H ⑨ Zap Mostek hex - Send $59 and then your Data Y

H ⑩ Zap Intel hex - Send $58 and your data X

B ⑪ Error Return ON - Send $61 - then command.

B ⑫ End Binaryfile - Send $50 used after Error Return Has been turned on & after the # of preset bytes (Setup parameters) has been sent.

H ⑬ To Verify Hex Hold down the verify button before power up. & Hold until the good Lamp stays on (green). When the verify button is released the green lamp will go out. Now the unit is ready to verify Hex

Zread	Module ID	400
ZMENU	Main Menu	500
Zout	out w/echo	600
ZAp	Zap/verify	1000
Zupload	U/L to MEM	2000
Zsave	To Disk	3000
Zload	from Disk	3100
Zchange	VARious	3200
ZIN	IN w/echo	700
ZIN2	No echo	750
GMENU	CLI	130

Zerror - Print error msg. - 70

Zend exits program with no error checking - 4000

1 screen page = 80 col. 24 rows

Software

NOTES

① A OPEN PORT for I/O.

① B ON STart up the Program Sends a $FF and wait for the echo. ← put in error checking

② Then it gets the Module ID (out 1, INS bytes).

③ It then goes directly to the main MENU.

- ZMENU - Before you get to ZMENU an ERROR Return ON is sent then your selection is processed.
- Zread - Sends a Mod ID command and receives ID STARTing address (hi/Lo) and ending address (hi/Lo). The calc's size.
- Zout - Sends out 1 byte waits for an echo then checks for an error (on error Gosub ZERROR)
- ZAp - Sends out ZAP command & Data to Zout. When done send Endbi
- Zupload - Sends UPLoad command & socket ID command. Then gets data from Zout, Puts into storage in memory.
- Zsave Stores memory to a disk filename.
- Zload Stores a disk filename into storage in memory
- Zchange Reads Module ID info or memory working range
- ZIN gets a byte from Zapper with echo.
- ZIN2 gets a byte from Zapper without echo.
- Zerror - gets Failed address, data sent, and prom Data.
- Zwaitkey
- ZDir
- ZAscii
- Zfill
- ZClean

```
Rem ************************************************************************
Rem *                      Public Domain Version.                          *
Rem *    Sample program on Atari ST for SMART ZAP using GFA BASIC.         *
Rem *       Translated by N.Cherry for use on an Atari 520 ST.             *
Rem *                                                                      *
Rem *         This program is not perfect or really user friendly.         *
Rem *                    But does work as advertised!                      *
Rem *** Z2.BAS ********************************************** 03/04/88 **********
Rem
Rem ************************************************************************
Rem *     This software was written for the SMART ZAP EPROM BURNER         *
Rem *                           by MICRO KIT                               *
Rem *                         6910 Patterson                               *
Rem *                      Caledonia, Mich 49316                           *
Rem *                         (616) 791-9333                               *
Rem *           Price: $99 Kit, $124 assembled and tested                  *
Rem * This software works better if you have the above, won't work at all if *
Rem *                           if you don't!                              *
Rem ************************************************************************
Rem
Rem ************************************************************************
Rem * This file is not yet complete and future versions may not be exactly  *
Rem * identical to the first 2 versions. The next release should have the   *
Rem * variables cleaned up and should allow the files to be placed anywhere *
Rem * within the 64k of reserved ram. And the setup and timing changes      *
Rem * should work well enough so that changing will not require a lot of    *
Rem * effort on the users part. I may also rewrite the Burners firmware to  *
Rem * Allow thing like sending a new Module ID code whenever a module has   *
Rem * changed and a few other ideas I have.                                *
Rem * Add Search, Replace, and Change the way you can exit from the print   *
Rem * menu.                                                                *
Rem ************************************************************************
'
' *
' * Memory set up to replace the dim stor$
' *
'
Resvmem=70*1024
Reserve Fre(0)-Resvmem
'
Deffn Malloc(A)=Gemdos(72,L:A)
Deffn Mfree(A)=Gemdos(73,L:A)
Deffn Set_port(A,B,C)=Xbios(15,A,B,C,-1,-1,-1)
Deffn Current_drive=Gemdos(&H19)
'
Version=2.1
'
Promsize=&H10000 ! * 64k + 1
Prom_addr=Fn Malloc(Promsize)
Gosub Promfill
'
Hidem ! * some kind of a bug has arisen where the hide/show mouse
Showm ! * routine doesn't work until after you've done a hidem
Hidem ! * showm and another hidem. Then the routines seem to work fine.
```

Instead of using RAM for storage use a tmp file.

```
  55: '
  56: ' *
  57: ' * Set the serial port to 9600 baud and RTS/CTS.
  58: ' *
  59: '
  60: Baud=1 !  * 9600 baud
  61: Cntl=2 !  * RTS/CTS
  62: Ucr=136 ! * 8 data bits, 1 stop , No Parity
  63: Void=Fn Set_port(Baud,Cntl,Ucr)
  64: '
  65: ' *
  66: ' * change to the current drive
  67: ' *
  68: '
  69: Drive=Fn Current_drive
  70: Chdrive Drive+1 ! * current_drive returns drive starting at 0 instead of 1
  71: Chdir '\' ! * change to the root directory
  72: On Drive+1 Gosub A_drive,B_drive,C_drive,D_drive
  73: '
  74: ' *
  75: ' * Initialize the variables and stuff
  76: ' *
  77: '
  78: Cls
  79: Begint=0
  80: Zendt=0
  81: N$='NONE'
  82: O$='NONE'
  83: C$='NONE'
  84: Xx=0
  85: '
  86: ' *
  87: ' * Wait for keyboard input ************************************************
  88: ' *
  89: '
  90: Print
  91: Print Tab(22);'ST is now set for 9600 baud, RTS/CTS.'
  92: Print Tab(19);'Set the DIP switches to : 1-7 ON and 8 OFF.'
  93: Print Tab(14);'Turn on Smart Zap and hit the space bar to continue.'
  94: Box 0,0,639,80
  95: Box 2,2,637,78
  96: '
  97: Gtkey:
  98: Repeat
  99:   A$=Inkey$
 100:   If A$=Chr$(&H1A) ! 'Z will exit the hole program
 101:     Gosub Finish
 102:   Endif
 103: Until A$=' '
 104: '
 105: ' *
 106: ' * Open the port ***************************************************************
 107: ' *
 108: '
 109: Open 'r',#1,'AUX:'
```

```
110:  Open 'r',#2,'CON:'
111:  '
112:  ' *
113:  ' * Clear the port ************************************************************
114:  ' *
115:  '
116:  Print
117:  Print
118:  Print Tab(33);'CLEARING PORT'
119:  Do
120:    A=Inp?(1)
121:    Exit If A=0
122:    Void=Inp(1)
123:  Loop
124:  Print Tab(34);'PORT CLEARED'
125:  Print
126:  '
127:  ' *
128:  ' * Send $FF out and wait for the echo ***********************************
129:  ' *
130:  '
131:  A=255
132:  Out 1,A
133:  Repeat
134:    A=Inp?(1)
135:  Until A=-1
136:  A=Inp(1)
137:  '
138:  ' *
139:  ' * Start of main routine Menu ***************************************************
140:  ' *
141:  '
142:  Gmsub1:
143:  Gosub Zread
144:  Gmenu:
145:  Gosub Zmenu
146:  Gosub Gkl
147:  Gosub Toupper
148:  A=&H61
149:  Gosub Zout
150:  '
151:  ' *
152:  ' * CLI ************************************************************************
153:  ' *
154:  '
155:  ' * Zap
156:  '
157:  If A$='Z' Then
158:    Command=&HF0
159:    Temp=1
160:    Goto Zap
161:  Endif
162:  '
163:  ' * Verify
164:  '
```

clear port

checkBurner

ZAP

```
165:  If A$='V' Then
166:    Command=&HF5
167:    Temp=0
168:    Goto Zap
169:  Endif
170:  '
171:  ' * Erase Check
172:  '
173:  If A$='E' Then
174:    Print At(11,23);'Checking PROM';
175:    Bad=0
176:    A=&HF6
177:    Gosub Zout
178:    A=&H50
179:    Gosub Zout
180:    If Bad=0
181:      Print At(11,23);'Erase Check - O.K.';
182:      Goto Zwaitkey
183:    Endif
184:  Endif
185:  '
186:  ' * Upload
187:  '
188:  If A$='U' Then
189:    Goto Upload
190:  Endif
191:  '
192:  ' * Save to disk
193:  '
194:  If A$='S' Then
195:    Goto Zsave
196:  Endif
197:  '
198:  ' * Load from disk
199:  '
200:  If A$='L' Then
201:    Goto Zload
202:  Endif
203:  '
204:  ' * Change
205:  '
206:  If A$='C' Then
207:    Goto Change
208:  Endif
209:  '
210:  ' * Exit program
211:  '
212:  If A$=Chr$(&H18) ! Total unconditional exit ^X
213:    Shown
214:    Gosub Finish
215:  Endif
216:  '
217:  If A$='X' Then ! * Alert before exit
218:    Goto Zend
219:  Endif
```

checkErase

Upload

ZSAVE

ZLOAD

Change

ZEXIT

```
220:  '
221:  ' * Print to screen
222:  '
223:  If A$='P' Then
224:    Goto Zedit
225:  Endif
226:  '
227:  ' * Fill STOR$ with $FF
228:  '
229:  If A$='F'
230:    Goto Zfill
231:  Endif
232:  '
233:  ' * Directory listing
234:  '
235:  If A$='D'
236:    Goto Zdir
237:  Endif
238:  '
239:  ' * Information
240:  '
241:  If A$='I'
242:    Goto Zinfo
243:  Endif
244:  '
245:  ' * Clean EEPROM
246:  '
247:  If A$='A' And Ee=1
248:    Gosub Zfill2
249:    Command=&HF0
250:    Goto Zap
251:  Endif
252:  '
253:  ' * Not a command, ring bell
254:  '
255:  Print Chr$(7)
256:  Goto Gmenu
257:  '
258:  ' *
259:  ' * Command code for ID module read ***************************************
260:  ' *
261:  '
262:  Procedure Zread        zread
263:    A=&HFB
264:    Gosub Zout
265:    Gosub Zin
266:    Module=A
267:    If A>15 And A<32
268:      Ee=1
269:    Else
270:      Ee=0
271:    Endif
272:    Gosub Zin
273:    Beginh=A
274:    Gosub Zin
```

```
  Begin1=A
  Gosub Zin
  Zendh=A
  Gosub Zin
  Zend1=A
  Begint=Beginh*256+Begin1
  Zendt=Zendh*256+Zend1
  Zsize=Zendt-Zbegint+1
Return
'
' *
' * Output to zapper and wait for echo ***********************************
' *
'
Procedure Zout
  Out #1,A
  B=0
  Repeat
    B=Inp?(1)
  Until B=-1
  X1=Inp(1)
  '
  If A<>X1
    Bad=1
    Gosub Zerr
  Endif
  '
Return
'
' *
' * Input from zapper then echo back **************************************
' *
'
Procedure Zin
  Gosub Zin2
  Out #1,A
Return
'
' *
' * An error occured just get the error message ***************************
' *
'
Procedure Zin2
  A=0
  Do
    A=Inp?(1)
    Exit If A=-1
    Ch$=Inkey$
    If Ch$=Chr$(&H1A) ! * ^X
      Gosub Finish
    Endif
  Loop
  '
  A=Inp(1)
Return
```

```
330:  '
331:  ' *
332:  ' * Print error message ***************************************************
333:  ' *
334:  '                                                    Zerr
335:  Procedure Zerr
336:    Cls
337:    Print
338:    Print Tab(20);'Error in echo back ** maybe the PROM failed'
339:    Print Tab(17);'Failed address           Data Sent     Data Prom'
340:    Gosub Zin2
341:    N=A*256
342:    Gosub Zin2
343:    N=N+A
344:    Print Tab(23);Hex$(N);
345:    Gosub Zin2
346:    Print Tab(47);Hex$(A);
347:    Gosub Zin2
348:    Print Tab(62);Hex$(A)
349:    Print
350:    Print Hex$(Xx),Hex$(Tbyte)
351:    Box 0,0,639,76
352:    Box 1,2,637,74
353:    Gosub Zwait
354:    '  X=Zend%+2
355:    Bad=1
356:  Return
357:  '
358:  ' *
359:  ' * Zap and verify ********************************************************
360:  ' *
361:  ' * Rewritten 03/01/88 ***************
362:  ' *
363:  '
364:  Zap:                                               ZAP
365:  Ba=0
366:  Xx=0
367:  A=Command
368:  Gosub Zout
369:  Cls
370:  Print
371:  Print '  BUSY ';
372:  '
373:  If Temp=1 Then
374:    Print 'ZAPPING'
375:  Else
376:    Print 'VERIFYING'
377:  Endif
378:  '
379:  Print
380:  Print
381:  Box 0,0,639,48
382:  Box 1,2,637,46
383:  '
384:  Print
```

```
Yy=0
For Xx=Begint To Zendt
  Inc Yy
  If Yy=64 And Temp<>1
    Print " *";
    Yy=0
  Else
    If Yy=32
      Print " *";
      Yy=0
    Endif
  Endif
  A=Peek(Prom_addr+Xx)
  Tbyte=A
  Gosub Iout
  [illegible]
  If [illegible]=1
    [illegible]=128
  Endif
[illegible]
Next Xx
[illegible]
Print " *"
If [illegible]
  A=[illegible]
  Gosub Iout
Endif
Goto [illegible]
[illegible]
' *
' * Upload data from PROM to memory ***************************************
' *
'
Upload:
Cls
[illegible]
[illegible]
Print At(20,2);"1) UPLOAD THE PROM IN THE CLONE SOCKET"
Print At(20,4);"2) UPLOAD THE PROM IN THE MASTER SOCKET"
Print At(20,6);"M) RETURN TO MENU"
[illegible],108
[illegible],106
[illegible]
A=[illegible]
[illegible]
[illegible]
If A$="M" Or A$="m"
  [illegible]
Endif
[illegible]
If [illegible] Then
  [illegible]
  Out #1,&H80
  [illegible]
Endif
```

upload

clone

Master

```
Message,
'IF ONLY THE RED LIGHT COMES ON THAT MEANS THE ECHO FAILED'
'BUSY UPLOADING'
```

UPLOAD CMD

```
************************************************ save memory to disk ************************************************
```

ZSAVE

```
'Saving buffer from beginning area of   ';B$
'To ending area of                      ';E$
```

[illegible] Load disk into memory **********

Zload

Enter the name of the file ';

[illegible] module or memory working area **********

change

Change Memory size'

Read new module ID'

Input new memory working range'

Return to menu.'

Command =) ';

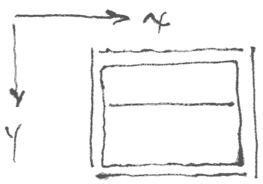
[illegible] repairing address (Hex input) ';A#

```
550:    Print Chr$(7);'Must Be 4 places long'
551:    Goto Change1
552:  Endif
553:  Gosub Htod
554:  I1=H
555:  I2=L
556:  Change2:
557:  Input 'New ending address (Hex input) ';A$
558:  If Len(A$)<>4
559:    Print Chr$(7);'Must be 4 places long'
560:    Goto Change2
561:  Endif
562:  Gosub Htod
563:  A=I1
564:  Gosub Zout
565:  A=I2
566:  Gosub Zout
567:  Begint=I1*256+I2
568:  A=H
569:  Gosub Zout
570:  A=L
571:  Gosub Zout
572:  Zendt=H*256+L
573:  Goto Gmenu
574:  '
575:  ' *
576:  ' * Change hex to decimal ************************************************
577:  ' * My version. This version works the way I want it to. *****************
578:  ' *
579:  '                                                    Htod
580:  Procedure Htod
581:    I=0
582:    For D=1 To 4
583:      C=Asc(Mid$(A$,D))
584:      If C>=48 And C<=57
585:        C=C-48
586:      Endif
587:      If C>=65 And C<=70
588:        C=C-55
589:      Endif
590:      If C>=97 And C<=102
591:        C=C-87
592:      Endif
593:      I=16*I+C
594:      If D=2
595:        H=I
596:        I=0
597:      Endif
598:    Next D
599:    L=I
600:  Return
601:  '
602:  ' *
603:  ' * Fill Malloc with FF ************************************************
604:  ' *
```

```
605:  '
606:  Zfill:
607:  Gosub Zfill2
608:  Goto Gmenu
609:  '
610:  Procedure Zfill2
611:    Cls
612:    Print At(3,2);'Filling Reserved memory area.'
613:    Box 0,0,639,48
614:    Box 2,2,637,46
615:    Yy=0
616:    Print At(0,5);
617:    For X=Begint To Zendt
618:      Inc Yy
619:      Poke (Prom_addr+X),&HFF
620:      If Yy=63
621:        Print ' *';
622:        Yy=0
623:      Endif
624:    Next X
625:  Return
626:  '
627:  ' *
628:  ' * Directory command ****************************************************
629:  ' *
630:  '                                                    ZDIR
631:  Zdir:
632:  Old$=N$
633:  Showm
634:  Fileselect D$,N$,O$
635:  If N$=''
636:    N$=Old$
637:  Endif
638:  Hidem
639:  Goto Gmenu
640:  '
641:  ' *
642:  ' * Information about program. ***************************************
643:  ' *
644:  '                                                    ZINFO
645:  Zinfo:
646:  Cls
647:  Box 0,0,639,399
648:  Box 2,2,637,397
649:  Print At(5,4);'SmartZap EPROM Burner By Micro Kit Electronics.'
650:  Print At(5,5);'Zap-ST written By N.Cherry 03/01/88 Version ';Version;'B.'
651:  Print At(5,6);'For use with the Atari 520ST. (or a  1040ST)'
652:  Print At(5,7);'BASIC Version will now handle any prom up to a 27512 or equivalent.'
653:  Print At(5,8);'C Version should also handle the same proms, but be more portable.'
654:  Print At(10,10);'Set for : 9600 baud  Done in the program with software.'
655:  Print At(20,11);'1 Start bit'
656:  Print At(20,12);'8 data bits'
657:  Print At(20,13);'1 Stop bit'
658:  Print At(20,14);'No parity'
659:  Print At(20,15);'RTS/CTS on, Xon/Xoff off.'
```

```
660:  Print At(5,17);'The largest size PROM that SmartZap can currently handle: 64K 27512.'
661:  Print At(5,18);'Version ';Version;' software can handle 64K 27512 PROMS'
662:  Print At(5,19);'The Letter after a version number indicates what language I wrote it in.'
663:  Print At(5,20);'     A - Assembly           B - GFA BASIC          C - 'C''
664:  Goto Zwaitkey
665:  '
666:  ' *
667:  ' * Wait for a key to be hit. ********************************************
668:  ' *
669:  '
670:  Zwaitkey:
671:  Print
672:  Gosub Zwait
673:  Goto Gmenu
674:  '
675:  Procedure Zwait
676:    Print At(26,24);'Please hit any key to continue.'
677:    Z=Inp(2)
678:  Return
679:  '
680:  ' *
681:  ' * print Malloc'd area
682:  ' *
683:  '
684:  Zedit:                                                    z edit
685:  T$='Print'
686:  T=0
687:  Pos=0
688:  B=0
689:  Cls
690:  '
691:  Box 0,0,639,399 !  * main box
692:  Box 2,2,637,38  !  * Title box
693:  Box 2,40,68,70 !   * Addr box
694:  Box 70,40,468,70 ! * addr of low byte
695:  Box 470,40,637,70 !* ASCII addr box
696:  Box 2,72,68,342 !  * Hi byte addr box
697:  Box 70,72,468,342 !* byte box
698:  Box 470,72,637,342!* ASCII box
699:  Box 2,344,637,397 !* Message box
700:  '
701:  Posit=1
702:  Print At(3,Posit+1);'  Smart Zap ';T$;' Screen'
703:  Print At(4,Posit+3);'ADDR';
704:  Print At(11,Posit+3);'00 01 02 03 04 05 06 07 08 09 0A 0B 0C 0D 0E 0F'
705:  Print At(62,Posit+3);'0123456789ABCDEF';
706:  Repeat
707:    ' Zupdate:
708:    Posit=Posit+4
709:    For X=0 To 15
710:      Inc Posit
711:      Print At(2,Posit);' $';Hex$(Pos);
712:      Print At(10,Posit);
713:      For Y=0 To 15
714:        Inc Z
```

```
715:       Gosub Wtob(Pos+Y)
716:       If Byte<16
717:         Print ' 0';Hex$(Byte);
718:       Else
719:         Print ' ';Hex$(Byte);
720:       Endif
721:     Next Y
722:     Print At(61,Posit);'¦';
723:     For Y=0 To 15
724:       Inc B
725:       Gosub Wtob(Pos+Y)
726:       If Byte=>32 And Byte<=126
727:         Print Chr$(Byte);
728:       Else
729:         Print '.';
730:       Endif
731:     Next Y
732:     Print At(78,Posit);'¦';
733:     Pos=Pos+16
734:   Next X
735:   Print At(4,Posit+2);'Please hit any
736:   A=Inp(2)
737:   Posit=1
738: Until Pos>Zendt Or A=&H1A
739: Goto Gmenu
740: '
741: ' *
742: ' * Smart Zap command selection menu
743: ' *
744: '
745: Procedure Zmenu
746:   Posit=0
747:   B$=Hex$(Begint)
748:   E$=Hex$(Zendt)
749:   M$=Hex$(Module)
750:   F=Fre(0)
751:   Cls
752:   Box 0,0,639,399 ! Large outer box
753:   Box 2,2,637,38 ! used as inner frame
754:   Box 2,40,637,124 ! used to box information
755:   Box 2,126,637,397 ! used to box selection
756:   '
757:   Print At(12,Posit+2);'Âtari ST EPROM BURNER PROGRAM Version ';Version;'B By N.Cherry'
758:   '
759:   Print At(11,Posit+4);'SMART ZAP';Tab(31);'MODULE ID              ';M$
760:   Print At(11,Posit+5);'MEMORY AVAILABLE ';F;
761:   Print Tab(31);'BEGIN AREA FOR ZAPPER   ';Begint
762:   Print At(11,Posit+6);'PROM SIZE        ';Zsize;
763:   Print Tab(31);'ENDING AREA             ';Zendt
764:   Print At(11,Posit+7);'FILE NAME        ';0$
765:   Print At(11,Posit+10);'Z)   ZAP FROM MEMORY';
766:   Print Tab(31);'U)   UPLOAD PROM TO MEMORY'
767:   Print At(11,Posit+12);'E)   VERIFY ERASE';
768:   Print Tab(31);'V)   VERIFY FROM MEMORY'
769:   Print At(11,Posit+14);'S)   SAVE MEMORY TO DISK';
```



640 = 80c
400 = 16c ?

Title

Info

Menu

```
770:    Print Tab(31);'L)   LOAD FROM DISK TO MEMORY'
771:    Print At(11,Posit+16);'F)   FILL STORED DATA AREA';
772:    Print Tab(31);'P)   PRINT UPLOADED STRING'
773:    Print At(11,Posit+18);'D)   DIRECTORY OF ';D$;
774:    Print Tab(31);'I)   GENERAL INFORMATION'
775:    Print At(11,Posit+20);'C)   CHANGE ID MODULE';
776:    If Ee=1
777:      Print Tab(31);'A)   CLEAN EEPROM'
778:      Print At(11,Posit+22);'X)   EXIT FROM PROGRAM'
779:    Else
780:      Print Tab(31);'X)   EXIT FROM PROGRAM'
781:    Endif
782:    Print At(26,Posit+24);'Command => ';
783:  Return
784:  '
785:  ' *
786:  ' * Get a key
787:  ' *
788:  '
789:  Procedure Gkl
790:    Repeat
791:      A=Inp?(2)
792:    Until A<>0
793:    A=Inp(2)
794:  Return
795:  '
796:  ' *
797:  ' * Push character to upper case
798:  ' *
799:  '
800:  Procedure Toupper
801:    If A>96 And A<123
802:      A=A-32
803:    Endif
804:    A$=Chr$(A)
805:    Print Chr$(A)
806:  Return
807:  '
808:  ' *
809:  ' * unknown error handler
810:  ' *
811:  '
812:  Zerror:
813:  Showm
814:  B$=' OK '
815:  S$='Unknown System error'
816:  Alert 2,S$,1,B$,A
817:  Gosub Finish
818:  '
819:  ' *
820:  ' * Not enough to memory to continue
821:  ' *
822:  '
823:  Procedure Nomem
824:    Showm
```

```
825:    B$='EXIT'
826:    Ms$='You'll have to elimante a few|accessories or ramdisk. As you|do not have enough memory to|continue, sorry!!'
827:    Print Chr$(7)
828:    Alert 3,Ms$,1,B$,A
829:    Print 'Error #';Err
830:    Gosub Zwait
831:    Gosub Finish
832:  Return
833:  '
834:  ' *
835:  ' * File_selector
836:  ' *
837:  '
838:  Procedure F_select
839:    Old$=N$
840:    Showm
841:    Repeat
842:      Fileselect D$,N$,O$
843:      N$=Mid$(O$,4)
844:    Until N$<>'' Or O$=''
845:    Hidem
846:  Return
847:  '
848:  '
849:  ' *
850:  ' * End of program ************************************************************
851:  ' *
852:  '
853:  Zend:
854:  Showm
855:  B$=' EXIT !RETURN'
856:  Ms$='  Do you want to|RETURN to ZAP-ST or|  Exit to Desktop?'
857:  Print Chr$(7)
858:  Alert 0,Ms$,1,B$,A
859:  If A=2
860:    Hidem
861:    Goto Gmenu
862:  Endif
863:  Gosub Finish
864:  '
865:  ' * this helps with the malloc routine
866:  '
867:  Procedure Finish
868:    Void=Fn Mfree(Prom_addr)
869:    Reserve Fre(0)+Resvmem-255
870:    End
871:  Return
872:  '
873:  ' * End of progam ***********************************************************
874:  '
875:  Procedure Promfill
876:    For X=0 To Promsize Step 4
877:      Lpoke Prom_addr+X,-1
878:    Next X
879:  Return
```

```
880:  '
881:  ' *
882:  ' * Word to byte function
883:  ' *
884:  '
885:  Procedure Wtob(Address)
886:    Byte=Peek(Prom_addr+Address)
887:  Return
888:  '
889:  Procedure A_drive
890:    D$="A:\*.*"
891:    D1$="A:\"
892:  Return
893:  '
894:  Procedure B_drive
895:    D$="B:\*.*"
896:    D1$="B:\"
897:  Return
898:  '
899:  Procedure C_drive
900:    D$="C:\*.*"
901:    D1$="C:\"
902:  Return
903:  '
904:  Procedure D_drive
905:    D$="D:\*.*"
906:    D1$="D:\"
907:  Return
908:
```

Total lines printed: 907

Total characters counted: 16712

SMART ZAP OPERATION

External mode, Serial or Parallel (Dip switch 3 on, 8 off)

When Smart Zap is powered up in the external mode it will wait in the command mode, indicated by the yellow lamp being on, for a valid command to be received. When a command is received it will be executed immediatly, and upon successful completion the program will return to the command mode. Following are the valid commands:

Command Word Hex	Decimal		Mode
F0H	240	(or Zap button)	Zap
F5H	245	(or Vfy button)	Verify
F6H	246		Verify erase only
F7H	247	(or both Zap & Vfy)	Upload
F9H	249		Setup Changes
FAH	250		Timing Changes
FBH	251		Module Read
FFH	255		Null
61H	97		Error Return on
53H	83		Motorola Hex
50H	80	(error return mode only)	End Binary File
3BH	59		Mostek Hex
3AH	58		Intel Hex

verifies in Binary

Proper execution of the chosen mode will be indicated by a green lamp. While the routine is being performed the green and red lamps will alternately flash. The lamps alternate each time 32 characters have been received. If you wish to return to the command mode, while in one of the above modes, simply press the Zap and Verify buttons at the same time and release them. This should give you a yellow lamp, and put you back in the command mode.

If an I/O input failure has occured while executing a mode, the red lamp will flash on and off. The indicated failures are:
2 blinks, unknown command received,
4 blinks, checksum failure (hex format only),
5 blinks, bad hex format,
6 blinks, input buffer overflow,
7 blinks, no stop bit received.

ERROR RETURN MODE:

In the 3 line echo mode an error is indicated by echoing the complement of the received byte, then the following information will be sent: the address where the error occured, in high byte low byte order, the data byte as received by the Zapper and the data byte as read from the programmed device (ie EPROM, EEprom).

In the 5 line mode, "F" (46H) is sent to the host computer if a failure occurs, then the Zapper sends the same error data as in the 3 line mode. When the end of file is reached the Zapper will send a "P" (50H) if the command has not failed.

The following are examples of how to use the different commands:

Zap (binary data):
Send F0H (240) followed by the data to be zapped. Or you can push the ZAP button followed by the zapping data.

Verify (binary data):
Send F5H (245) followed by the data to be verified with the chip in the zap socket, or push the Verify button followed by the zapping data.

Verify Erase:
Send F6H (246) only.

Upload (binary data):
Send F7H (247) or push the Zap and Verify button at the same time. Now send 40H (64) or push the Zap button, if the data to be sent out is from the master socket, or send 80H (128) or push the verify button, if the data to be sent out is from the clone socket.

Setup Changes:
Send F9H (249) then the start address high byte, the start address low, the end address high, and then the end address low. The setup change can be used for zapping, verifying, or uploading from one location thru all locations.

Timing Changes:
Send FAH (250) then the overzap byte, the loopmax byte, then the delay time highbyte then lowbyte. Overzap byte is used in the fast zapping mode (dip switch 2=on) Overzap pulse equals the overzap byte times the loop count. The loopmax is the number of times the program will try to zap a location. Overzap byte and loopmax byte are standard Intel designations, set to that standard unless changed. See an Intel manual for a complete explanation. The delay time bytes are a value used to generate the 1 millisecond delay when zapping, it is normally set to 0133H (307) but can be made smaller if necessary.

Module ID Code:
Send FBH (251) then receive back the module ID code followed by the Beginning Address (high then low byte) and Ending Address of range to be zapped.

Null:
Sending FFH (255) does nothing in the command mode. This command is used to compensate for software discrepancies in some computers in the area of the transmit buffer.

Error Return on:

Send 61H (97). This command enables an enhanced error response mode for the first operation which follows it only. When an error occurs it causes the address where the error occured, in high byte low byte order, to be sent back to the host computer, followed by the data as received from the host computer then the data as read from the programmed device (ie EPROM, EEPROM).

Zap Motorola Hex:

The first byte in a Motorola Hex file is always 53H (80), when Smart Zap receives this command it will assume that you want to use the following data to zap a device unless you have performed the Verify Hex sequence.

End Binary File:

This command is only used if Error Return mode has been enabled. Send 50H (80) to indicate the end of a binary file has been reached. This command can't be used to end a file before the preset number of bytes have been sent. The preset number of bytes is determined either by the default number of bytes in the device being programmed or by the range allowed by use of the Setup Changes command.

Zap Mostek Hex:

Same as Motorola hex except the first byte is always 3BH (59).

Zap Intel Hex:

Same as Motorola hex except the first byte is always 3AH (58).

Verify Hex:

Hold down the Verify button before powering up the Smart Zap unit, continue to hold the button down until the Good lamp stays on, about 2 seconds. When the Verify button is released the Green lamp will go off, and the unit is ready to verify from a hex file.

*NOTE: If echo mode is on then Smart Zap will expect an echo of all words it sends, and it will echo all words it receives. If a failure occurs while in echo mode the data will be complemented before it is echoed back, this is a software signal to the host computer that a failure has occured.

PROJECTS FILE

* ---------- *

1) SMARTZAP.TOS - A terminal interface to the SMARTZAP EPROM burner, Allows uploading and down loading from EPROM in various formats.

2) SIMPLASM.TTP - This program will assemble programs for various Micro-processors (68xx, 65xx, 658xx, 80xx, Z80).

3) DISASSEM.TTP - This program disassembles the above assembled programs allowing them to be sent to various devices.

4) SPLIT.TTP - This program will split 68000 programs into even and odd files so they be loaded into EPROM.

5) BSRX10.PRG - This program will be used as an interface to the 6802 BRS microcontroller. This unit will have an on board clock, non-volatile SRAM, a serial port and an optional printer port. Other upgrades allow the use of a 6809 uP and upload and download capabilities of events.

6) SEARCH.TTP - This program will search all directories for the occurance of the input string. Should include a wildcard for search.

7) CPRINT.TTP - This program will take a file and send it to the printer, opptiions should include no header and no line numbers.

* ---------- *

EQUIPMENT NEEDED

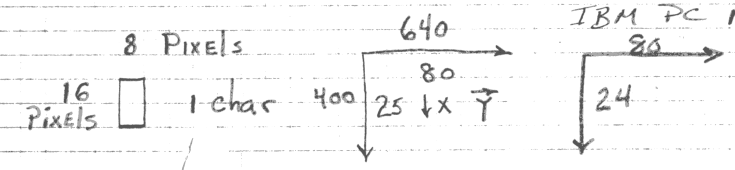
* ---------- *

Atari ST, 1-4 meg upgrade, 2 floppy drives, Hard drive, 3/12/24 modem, printer, C-compiler, Resource Construction Set, Disassembler, Assembler, Editor, and debugger. For work on the Atari 8 bit series the Atari 8 bit emulator, IBM emulator, and Apple emulator.

For the X10 project:
X10 controllers, control units, uProcessor boards, sensors, and various hardware

* ---------- *

Atari ST EPROM BURNER PROGRAM VERSION 1.8B BY N. CHERRY



IBM PC MONO & TERMINALS

Files

Remember to put returns into your routines, this help with errors at compile

ZAP.C & ZMAIN.C
STDIO.H
MISC.H ctype.h
~~GLOBAL.H~~
SECTOR.H
OSBIND.H
SMART.H
FCNTL.H

ZCALC.C ← calculate from INFO etal
~~ZCLI.C~~
~~COMMAND.C~~ ← INTERPET INPUT & TAKE the NECESSARY action
CURSOR.C ← CURSOR POSITIONING
FSEL_ZAP.C ← MODIFIED FSELECT FOR SMART ZAP
ZMEMORY.C ← OPENS FILES, GETS SIZE RESERVES MEMORY & STORES FILES
ZMENU.C ← MAIN MENU
ZIO.C ← INPUT AND OUTPUT TO SMART ZAP & ERROR DETECTION
ZGLOBAL.C

ZAP.C
① INIZ. GEM HANDLERS!
② INITIALIZE - PORT TO 9600 CTS & DATA ISTART ISTOP
③ CLEAR OPENED PORTS.
④ ECHO $FF AND WAIT FOR RESPONSE,
⑤ GET MODULE ID AND SIZE
⑥ MENU & COMMANDS → COMMAND

Hex INPUT is direct (S1, INTEL, MOSTEK, TEK)
No Need for $50 OR $
BOF EOF

n/c x transmissions
12 errors or
n/c func returns