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0000 1: ;-----
0000 2: ;      Copyright 2010 Integrated Logic Systems
0000 3: ;      Source Code is Copyright Stephen J. Car
0000 4: ;
0000 5: ;
0000 6: ;      Please do not share this source!
0000 7: ;-----
0000 8: ;      RealSiov.com
0000 9: ;
0000 10: ;      This is a program to will change at will the siov i
0000 11: ;
0000 12: ;
0000 13: ;
0000 14: ;      init  4/30/2010      sjc new design
0000 15: ;
0000 16: ;      ~~~~~
0000 17: ;-----
0000 18: ; Notes: o This source code MAY NOT be placed for download
0000 19: ;      o "mea" is a macro that loads the address of the
0000 20: ;      into the pointer specified by the second field.
0000 21: ;-----
0000 22: ; Assembler: MADMAC (tm) ST Cross Assembler (Atari Corp)
0000 23: ;      XASM  st and IBM VERSIONS
0000 24: ;-----
0000 25:
0000 26: com_file_name:      .macro
0000 27: ;      dc.b  12,"filename.ext",$9b
0000 28: ;      dc.b  12,"RealSiov.com",$9b
0000 29: ;      .endm
0000 30:
0000 31: ;
0000 32: ;~~~~~
0000 33: ; File revision history. Version Number in hex
0000 34: ;
0000 35: file_ver:      equ  $11
0000 36: ;~~~~~
0000 37: ; the Month in dec for the first time this revision
0000 38: ;was compiled
0000 39: ;
0000 40: c_month:      equ  8
0000 41: ;~~~~~
0000 42: ; the day in dec for the first time this revision
0000 43: ;was compiled
0000 44: c_day:      equ  28
0000 45: ;~~~~~
0000 46: ; the year in dec for the first time this revision
0000 47: ;was compiled
0000 48: c_year:      equ  2012
0000 49: ;~~~~~
0000 50: ; Type of compiler used in program
0000 51: ;
0000 52: ; 0 = unknown Compiler
0000 53: ; 1 = xasm

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0000      54: ; 2 = mac_65
0000      55: ; 3 = basic
0000      56: ; 4 = compiled basic xl
0000      57: ; 5 = C65
0000      58: ; 6 = Action
0000      59: ;
0000      60: ; We can add more as time goes on!
0000      61: ;
0000      62: ;
0000      63: ;
0000      64: xasm:          equ    1
0000      65: mac_65:        equ    2
0000      66: basic:         equ    3
0000      67: basicxl:       equ    4
0000      68: c65:          equ    5
0000      69: action:        equ    6
0000      70:
0000      71: file_compiler:     equ    xasm
0000      72: ;~~~~~
0000      73: ; is this relocatable code ?
0000      74: ; anyother value other than 1 or 2 would be unknown
0000      75: r..yes:             equ    1
0000      76: r..no:              equ    2
0000      77: ;
0000      78: ;~~~~~
0000      79: ; Gotta define if it can be relocated
0000      80: l_relocatable:      equ    r..yes
0000      81: ;
0000      82: ;
0000      83: ;~~~~~
0000      84: ; Gotta define if it can be relocated
0000      85: r..crl:             equ    $7d
0000      86: r..crlf:            equ    $9b
0000      87: r..space:           equ    $20
0000      88:
0000      89: l_frstscreenbyte:   equ    r..crl
0000      90: ;~~~~~
0000      91: ; The language the output file is in.
0000      92: ;
0000      93: ;
0000      94: ; 0 =    Undefined
0000      95: ; 1 =    English
0000      96: ; 2 =    German
0000      97: ;
0000      98: r..language:        equ    1
0000      99: ;~~~~~
0000     100:
0000     101: EDITRV:             equ    $E400
0000     102: casetbuf:           equ    $0400      ; cassette
0000     103: STACKP:             equ    $0318
0000     104: SOUND:              equ    $41
0000     105: CASFLG:             equ    $030F
0000     106: TSTAT:              equ    $0319

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0000      107: CDEVIC:      equ   $023A
0000      108: CCOMND:      equ   $023B
0000      109: CAUX1:      equ   $023C
0000      110: DRETRY:      equ   $02BD
0000      111: CRETRY:      equ   $029C
0000      112:
0000      113:
0000      114:
0000      115:
0000      116:      .include   equates
0000      117:      .include   globals
0000      118:      .include   macros
0000      119:
4000      120:      .org   $4000
4000      121:
4000      122: win_start:
4000      123: header_info:
4000      124:      .include   header
42a7      125: ;
42a7      126: start:
42a7 20294d 127:      jsr   printsi
42aa 9b9b 128:      dc.b   $9b,$9b
42ac 53494f 129:      dc.b   "SIOV Menu Selected", $9b
42bf 576869 130:      dc.b   "Which SIOV would you like ?", $9b
42db dbd3dd 131:      dc.b   <+128>,"[S]"
42de 203d20 132:      dc.b   " = US Doubler SIOV", $9b
42f1 dbcfdd 133:      dc.b   <+128>,"[O]"
42f4 203d20 134:      dc.b   " = SIOV from OS!", $9B
4305 dbcd3d 135:      dc.b   <+128>,"[M]"
4308 203d20 136:      dc.b   " = ILS's Fast Mux SIOV!", $9B
4320 dbc9dd 137:      dc.b   <+128>,"[I]"
4323 203d20 138:      dc.b   " = ILS's NEw Fast SIOV!", $9B
433b dbd1dd 139:      dc.b   <+128>,"[Q]"
433e 203d20 140:      dc.b   " = DOS to pic's the SIOV", $9b
4357 dbc1dd 141:      dc.b   <+128>,"[A]"
435a 203d20 142:      dc.b   " = Abort SioV selection & Exit", $9
4379 9b 143:      dc.b   $9b
437a 20596f 144:      dc.b   " You Selection? "
438a 9b9b 145:      dc.b   $9b,$9b
438c ff 146:      dc.b   -1
438d      147: .tkc1:
438d adfc02 148:      lda   $2fc
4390 c9ff 149:      cmp   #$ff
4392 f0f9 150:      beq   .tkc1
4394 c93e 151:      cmp   #$3e      ;'S'  Load the Sp
4396 f041 152:      beq   .SpartaSiov
4398 c925 153:      cmp   #$25      ;'M'  Load the Mu
439a f045 154:      beq   .mux.siov
439c c908 155:      cmp   #$08      ;'O'  Load the OS
439e f049 156:      beq   .os.siov
43a0 c92f 157:      cmp   #$2f      ;'Q'  The program
43a2 f017 158:      beq   .tkc
43a4 c93f 159:      cmp   #$3f      ;'A'

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43a6 f029 160:      beq  .byby
43a8 c916 161:      cmp  #$16      ;'X'
43aa f025 162:      beq  .byby
43ac c92a 163:      cmp  #$2a      ;'E'
43ae f021 164:      beq  .byby
43b0 c91c 165:      cmp  #$1c      ;'Esc'
43b2 f01d 166:      beq  .byby
43b4 c90d 167:      cmp  #$0d      ;'T'
43b6 f066 168:      beq  .sjc
43b8 4c8d43 169:      jmp  .tkc1
43bb      170: .tkc:
43bb a9ff 171:      lda  #$ff
43bd 8dfc02 172:      sta  $2fc
43c0 204d44 173:      jsr  interrogate
43c3 ad12d0 174:      lda  $d012      ; pin 3 and
43c6 c900 175:      cmp  #$00
43c8 f00f 176:      beq  .SpartaSiov
43ca ad5b49 177:      lda  USP_DATA
43cd c9ff 178:      cmp  #$FF
43cf f020 179:      beq  .os.siov1
43d1      180:
43d1      181: .byby:
43d1 a9ff 182:      lda  #$ff
43d3 8dfc02 183:      sta  $2fc
43d6 4c0d45 184:      jmp  Exit
43d9      185: .SpartaSiov:
43d9 a9ff 186:      lda  #$ff
43db 8dfc02 187:      sta  $2fc
43de 4cc544 188:      jmp  SPARTA_SIO
43e1      189: ;
43e1      190:
43e1      191: .mux.siov:
43e1 a9ff 192:      lda  #$ff
43e3 8dfc02 193:      sta  $2fc
43e6 4c7744 194:      jmp  mux_sio
43e9      195:
43e9      196:
43e9      197: .os.siov:
43e9 a9ff 198:      lda  #$ff
43eb 8dfc02 199:      sta  $2fc
43ee 204d44 200:      jsr  interrogate
43f1 ad5d49 201: .os.siov1: lda  os_type
43f4 c980 202:      cmp  #$80
43f6 b01e 203:      bcs  .mux_sio
43f8 20294d 204:      jsr  printsi
43fb 204c6f 205:      dc.b  " Loading Siov from OS!",$9B,-1
4413 4c9e44 206:      jmp  USP_SIO
4416      207: ;
4416      208: .mux_sio:
4416 a9ff 209:      lda  #$ff
4418 8dfc02 210:      sta  $2fc
441b 4c7744 211:      jmp  mux_sio
441e      212: .sjc:

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441e a9ff 213:      lda  #$ff
4420 8dfc02 214:      sta  $2fc
4423      215: ;
4423 20294d 216:      jsr  printsi
4426 205374 217:      dc.b  " Steve's New Siov Routeen LOADED!"
444a 4cf844 218:      jmp  steve
444d      219:
444d      220: ;
444d      221: interrogate:
444d 20a442 222:      jsr  start-3          ; this will
4450 207447 223:      jsr  pal_ntsc        ; Going to
4453 20124c 224:      jsr  TEST_SMARTOS    ; looking t
4456 203047 225:      jsr  kpi_test        ; testing f
4459 20d846 226:      jsr  BLACK_BOX      ; testing f
445c 20da48 227:      jsr  MIO_TEST        ; Testing f
445f 205e49 228:      jsr  USP            ; Testing f
4462 20e049 229:      jsr  TEST_OS        ; Let's See
4465 200f48 230:      jsr  ape_run        ; lets see
4468 208448 231:      jsr  modem_run      ; Let's see
446b 20af48 232:      jsr  printer_run    ; Let's see
446e 20dd47 233:      jsr  pc_run         ; Let's see
4471 60 234:      rts
4472      235:
4472      236:
4472      237:
4472      238: ;-----
4472      239: ; This is the ILS Siov Routine
4472      240: ;-----
4472      241:
4472 4cbd07 242: data_us:  dc.b  $4c,$bd,$07,$b5,20
4477      243: MUX_SIO:
4477 20294d 244:      jsr  printsi
447a 204d75 245:      dc.b  " Multiplexer Siov Routeen LOADED!"
449e      246: ;
449e      247: USP_SIO:
449e a000 248:      ldy  #$00
44a0 b97244 249: .us:      lda  data_us,y
44a3 999807 250:      sta  $798,Y
44a6 c8 251:      iny
44a7 c005 252:      cpy  #$05
44a9 d0f5 253:      bne  .us
44ab      254:
44ab a907 255:      lda  #low segtab1
44ad 85d7 256:      sta  zwptr
44af a946 257:      lda  #high segtab1
44b1 85d8 258:      sta  zwptr+1
44b3 202946 259:      jsr  set_block
44b6 20de4c 260:      jsr  OS_QUIK_OFF
44b9 200e45 261:      jsr  relocate
44bc 201b50 262: w9a42:  jsr  L_E6E2
44bf 60 263:      rts
44c0      264: ;
44c0      265: ;-----

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44c0      266: ; We must change 5 bytes at location
44c0      267: ; $0798 "not_for_mux" to
44c0      268: ;
44c0      269: ; lda pdvmsk
44c0      270: ; beq go_sio
44c0      271: ;
44c0      272: ; this is the dc.b equivalent of
44c0      273: ; these two code lines
44c0      274: ;
44c0      275: ;
44c0      276: ;-----
44c0      277: ;
44c0 ad4702 278: DATA_MUX:   dc.b  $AD,$47,$02,$F0,$20
44c5      279: SPARTA_SIO:
44c5 a000 280:         ldy  #$00
44c7 b9c044 281: .CSS:     LDA  DATA_MUX,Y
44ca 999807 282:         sta  $798,Y
44cd c8 283:         iny
44ce c005 284:         cpy  #$05
44d0 d0f5 285:         bne  .CSS
44d2      286: ;
44d2 20294d 287:         jsr  printsi
44d5 205553 288:         dc.b  " US Doubler Siov Routeen LOADED!",
44f8      289: ;
44f8 a918 290: steve:   lda  #low segtab2
44fa 85d7 291:         sta  zwptr
44fc a946 292:         lda  #high segtab2
44fe 85d8 293:         sta  zwptr+1
4500      294:
4500 202946 295:         jsr  set_block
4503 20de4c 296:         jsr  OS_QUIK_OFF
4506 200e45 297:         jsr  relocate
4509 20af52 298: w9b32    JSR  S_LE6E2
450c 60 299:         rts
450d      300:
450d      301:
450d      302: exit:
450d 60 303:         rts
450e      304:
450e      305: ;-----
450e      306: ;
450e      307: ;
450e      308: ; Relocater: main entry
450e      309: ; -----
450e      310: ; in:
450e      311: ; segtab = table of segment descriptors
450e      312: ; +00 = relocater table address
450e      313: ; +02 = originate address of block
450e      314: ; +04 = destination originate of block
450e      315: ; +06 = address of block
450e      316: ; +08 = number of bytes in block
450e      317: ; +10 = destination address of block
450e      318: ; +12 = Length of segment descriptor

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450e 319: ; +14 = this is the word location adjust mem
450e 320: ;
450e 321: ;
450e 322: ;
450e 323: ;
450e 324: ; relob = relocater table
450e 325: ; list of address of words to adjust 2
450e 326: ; list of address low bytes to adjust 2
450e 327: ; list of address high bytes to adjust 3
450e 328: ; followed by their low bytes
450e 329: ; ~~~~~
450e 330: relocate:
450e ad0446 331: lda segtab+segaddress ; s
4511 8dfa45 332: sta segtab+dorgadr ; P
4514 8d0046 333: sta segtab+blkdes ; P
4517 ad0546 334: lda segtab+segaddress+1 ; s
451a 8dfb45 335: sta segtab+dorgadr+1 ; P
451d 8d0146 336: sta segtab+blkdes+1 ; P
4520 337:
4520 a900 338: lda #0 ; s
4522 8df345 339: sta .segment ; C
4525 8df445 340: sta .zoffset ; C
4528 8df545 341: sta .zoffset+1 ; C
452b 342:
452b aef345 343: .segloop: ldx .segment
452e bdf645 344: lda segtab+rettad,x ; g
4531 8dd945 345: sta .relget+1
4534 bdf745 346: lda segtab+rettad+1,x
4537 8dda45 347: sta .relget+2
453a 0dd945 348: ora .relget+1 ; i
453d d001 349: bne .havseg
453f 60 350: rts
4540 351:
4540 38 352: .havseg: sec ; c
4541 bdfa45 353: lda segtab+dorgadr,x
4544 fdf845 354: sbc segtab+orgadr,x
4547 8df445 355: sta .zoffset
454a bdfb45 356: lda segtab+dorgadr+1,x
454d fdf945 357: sbc segtab+orgadr+1,x
4550 8df545 358: sta .zoffset+1
4553 359:
4553 20e445 360: .zwordlp: jsr .getzwp
4556 f013 361: beq .zlbytlp ; i
4558 362:
4558 b1d7 363: lda (zwptr),y ; a
455a 18 364: clc
455b 6df445 365: adc .zoffset
455e 91d7 366: sta (zwptr),y
4560 c8 367: iny
4561 b1d7 368: lda (zwptr),y
4563 6df545 369: adc .zoffset+1
4566 91d7 370: sta (zwptr),y
4568 4c5345 371: jmp .zwordlp

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456b      372:
456b 20e445 373: .zlbytlp:  jsr  .getzwp          ; g
456e f00b   374:          beq  .zhbytlp          ; i
4570      375:
4570 b1d7   376:          lda  (zwptr),y
4572 18     377:          clc
4573 6df445 378:          adc  .zoffset
4576 91d7   379:          sta  (zwptr),y
4578 4c6b45 380:          jmp  .zlbytlp
457b      381:
457b 20e445 382: .zhbytlp:  jsr  .getzwp          ; g
457e f012   383:          beq  .zmovlp          ; j
4580      384:
4580 20d845 385:          jsr  .relget          ; g
4583 18     386:          clc
4584 6df445 387:          adc  .zoffset
4587 b1d7   388:          lda  (zwptr),y
4589 6df545 389:          adc  .zoffset+1
458c 91d7   390:          sta  (zwptr),y
458e 4c7b45 391:          jmp  .zhbytlp
4591 60     392:          rts
4592      393:
4592      394: .zmovlp:
4592 ad0246 395:          lda  .segment+segmove    ; g
4595 c9ff   396:          cmp  #seg_off           ; $
4597 d001   397:          bne  ..zmovlp           ; m
4599 60     398:          rts                     ; o
459a      399:
459a aef345 400: ..zmovlp:  ldx  .segment          ; g
459d bdfc45 401:          lda  segtab+blkadr,x
45a0 8dbb45 402:          sta  .zmovfr+1
45a3 bdfd45 403:          lda  segtab+blkadr+1,x
45a6 8dbc45 404:          sta  .zmovfr+2
45a9      405:
45a9 bd0046 406:          lda  segtab+blkdes,x
45ac 8dbe45 407:          sta  .zmovto+1
45af bd0146 408:          lda  segtab+blkdes+1,x
45b2 8dbf45 409:          sta  .zmovto+2
45b5      410:
45b5      411:          ; g
45b5 bcff45 412:          ldy  segtab+blkbyt+1,x
45b8      413:
45b8 a200   414:          ldx  #0
45ba bdffff 415: .zmovfr:   lda  $ffff,x
45bd 9dffff 416: .zmovto:   sta  $ffff,x
45c0 e8     417:          inx
45c1 d0f7   418:          bne  .zmovfr
45c3 eebc45 419:          inc  .zmovfr+2
45c6 eebf45 420:          inc  .zmovto+2
45c9 88     421:          dey
45ca 10ee   422:          bpl  .zmovfr          ; m
45cc      423:          ;
45cc adf345 424:          lda  .segment

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45cf 18 425:      clc
45d0 690c 426:      adc  #seglen          ; g
45d2 8df345 427:      sta  .segment
45d5 4c2b45 428:      jmp  .segloop
45d8      429:
45d8      430:
45d8 adffff 431: .relget:  lda  $ffff
45db eed945 432:      inc  .relget+1
45de d003 433:      bne  .nc1
45e0 eeda45 434:      inc  .relget+2
45e3 60 435: .nc1:      rts
45e4      436:
45e4 20d845 437: .getzwp:  jsr  .relget          ; t
45e7 85d7 438:      sta  zwptr          ; s
45e9 20d845 439:      jsr  .relget
45ec a000 440:      ldy  #0
45ee 85d8 441:      sta  zwptr+1
45f0 05d7 442:      ora  zwptr          ; c
45f2 60 443:      rts
45f3      444:
45f3 00 445: .segment:  dc.b  0          ; c
45f4 0000 446: .zoffset:  dc.w  0          ; o
45f6      447: ;
45f6      448: ;~~~~~
45f6      449: ;End of relocation Table!!!
45f6      450: ;master table:
45f6      451: ;
45f6      452: segtab:
45f6 0000 453:      dc.w  0          ;rt
45f8 0000 454:      dc.w  0          ;in
45fa 0000 455:      dc.w  0          ; r
45fc 0000 456:      dc.w  0          ;in
45fe 0000 457:      dc.w  0          ; z
4600 0000 458:      dc.w  0          ; d
4602 0000 459:      dc.w  0          ; E
4604 0000 460:      dc.w  0          ;$3
4606      461:          ; i
4606      462:          ; m
4606 ff 463:      dc.b  seg_off          ; -
4607      464:
4607      465: ;
4607      466: segtab1:
4607 3646 467:      dc.w  rtable1          ; a
4609 924d 468:      dc.w  X_L4034          ; a
460b 0000 469:      dc.w  0          ; r
460d 924d 470:      dc.w  X_L4034          ; a
460f 9402 471:      dc.w  LE_RAM_END-X_L4034          ; s
4611 0000 472:      dc.w  0          ; d
4613 0000 473:      dc.w  0          ; E
4615 59e4 474:      dc.w  $e459          ; s
4617      475:          ; i
4617      476:          ; m
4617 00 477:      dc.b  seg_on          ; -

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4618      478: ;
4618      479: segtab2:
4618 9146 480:      dc.w  rtable2          ; a
461a 2650 481:      dc.w  S_L4034          ; a
461c 0000 482:      dc.w  0              ; r
461e 2650 483:      dc.w  S_L4034          ; a
4620 9402 484:      dc.w  SE_RAM_END-S_L4034      ; s
4622 0000 485:      dc.w  0              ; d
4624 0000 486:      dc.w  0              ; E
4626 59e4 487:      dc.w  $e459          ; s
4628      488:              ; i
4628      489:              ; m
4628 00   490:      dc.b  seg_on          ; -
4629      491: ;
4629 a000 492: set_block: ldy  #$00
462b b1d7 493: .a:      lda  (zwptr),y
462d 99f645 494:      sta  segtab,y
4630 c8   495:      iny
4631 c011 496:      cpy  #16+1
4633 d0f6 497:      bne  .a
4635 60   498:      rts
4636      499: ;
4636      500: ;
4636      501: ;
4636      502: rtable1:
4636 a94d 503:      dc.w  w9a01+1
4638 bb4d 504:      dc.w  w9a02+1
463a c04d 505:      dc.w  w9a03+1
463c c54d 506:      dc.w  w9a04+1
463e cb4d 507:      dc.w  w9a05+1
4640 cf4d 508:      dc.w  w9a06+1
4642 d74d 509:      dc.w  w9a07+1
4644 e14d 510:      dc.w  w9a08+1
4646 f04d 511:      dc.w  w9a09+1
4648 fb4d 512:      dc.w  w9a10+1
464a fe4d 513:      dc.w  w9a11+1
464c 014e 514:      dc.w  w9a12+1
464e 044e 515:      dc.w  w9a13+1
4650 074e 516:      dc.w  w9a14+1
4652 0c4e 517:      dc.w  w9a15+1
4654 194e 518:      dc.w  w9a16+1
4656 1c4e 519:      dc.w  w9a17+1
4658 254e 520:      dc.w  w9a18+1
465a 2a4e 521:      dc.w  w9a19+1
465c 2f4e 522:      dc.w  w9a20+1
465e 324e 523:      dc.w  w9a21+1
4660 3d4e 524:      dc.w  w9a22+1
4662 734e 525:      dc.w  w9a23+1
4664 764e 526:      dc.w  w9a24+1
4666 844e 527:      dc.w  w9a25+1
4668 874e 528:      dc.w  w9a26+1
466a 8b4e 529:      dc.w  w9a27+1
466c 904e 530:      dc.w  w9a28+1

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466e a34e 531:      dc.w  w9a29+1
4670 b24e 532:      dc.w  w9a30+1
4672 b94e 533:      dc.w  w9a31+1
4674 c54e 534:      dc.w  w9a32+1
4676 cc4e 535:      dc.w  w9a33+1
4678 d24e 536:      dc.w  w9a34+1
467a e14e 537:      dc.w  w9a35+1
467c e44e 538:      dc.w  w9a36+1
467e ec4e 539:      dc.w  w9a37+1
4680 0c4f 540:      dc.w  w9a38+1
4682 0350 541:      dc.w  w9a39+1
4684 0d50 542:      dc.w  w9a40+1
4686 2050 543:      dc.w  w9a41+1
4688 bd44 544:      dc.w  w9a42+1
468a      545:
468a 0000 546:      dc.w   0
468c 0000 547:      dc.w   0
468e 0000 548:      dc.w   0
4690 00   549:      dc.b   0
4691      550:
4691      551: rtable2:
4691 3950 552:      dc.w  w9b01+1
4693 4050 553:      dc.w  w9b02+1
4695 4350 554:      dc.w  w9b03+1
4697 4950 555:      dc.w  w9b04+1
4699 9e50 556:      dc.w  w9b05+1
469b aa50 557:      dc.w  w9b06+1
469d b250 558:      dc.w  w9b07+1
469f b750 559:      dc.w  w9b08+1
46a1 ba50 560:      dc.w  w9b09+1
46a3 c450 561:      dc.w  w9b10+1
46a5 ce50 562:      dc.w  w9b11+1
46a7 f150 563:      dc.w  w9b12+1
46a9 0751 564:      dc.w  w9b13+1
46ab 0a51 565:      dc.w  w9b14+1
46ad 1851 566:      dc.w  w9b15+1
46af 1b51 567:      dc.w  w9b16+1
46b1 1f51 568:      dc.w  w9b17+1
46b3 2451 569:      dc.w  w9b18+1
46b5 3751 570:      dc.w  w9b19+1
46b7 4651 571:      dc.w  w9b20+1
46b9 4d51 572:      dc.w  w9b21+1
46bb 5951 573:      dc.w  w9b22+1
46bd 6051 574:      dc.w  w9b23+1
46bf 6651 575:      dc.w  w9b24+1
46c1 7551 576:      dc.w  w9b25+1
46c3 7851 577:      dc.w  w9b26+1
46c5 8051 578:      dc.w  w9b27+1
46c7 a051 579:      dc.w  w9b28+1
46c9 9752 580:      dc.w  w9b29+1
46cb a152 581:      dc.w  w9b30+1
46cd b452 582:      dc.w  w9b31+1
46cf 0a45 583:      dc.w  w9b32+1

```

```

46d1      584:
46d1 0000 585:      dc.w  0
46d3 0000 586:      dc.w  0
46d5 0000 587:      dc.w  0
46d7 00   588:      dc.b  0
46d8      589:
46d8      590:
46d8      591: ;-----
46d8      592: ;
46d8      593: ; Checking on the black box if it is present!
46d8      594: ;
46d8      595: ;-----
46d8      596: BLACK_BOX:
46d8 78   597:      sei
46d9 a902 598:      lda  #2
46db 8dc0d1 599:      sta  BB_Sensel
46de a010 600:      ldy  #$10
46e0      601: Y7008:
46e0 a202 602:      ldx  #2
46e2 b900d8 603:      lda  pbi_rom,Y
46e5 dd2c47 604:      cmp  Y703B,X
46e8 f007 605:      beq  Y7016
46ea c8   606:      iny
46eb d0f3 607:      bne  Y7008
46ed 4c2447 608:      jmp  Y7033
46f0 60   609:      rts
46f1      610: ;
46f1      611: Y7016:
46f1 c8   612:      iny
46f2 ca   613:      dex
46f3 300a 614:      bmi  Y7024
46f5 b900d8 615:      lda  pbi_rom,Y
46f8 dd2c47 616:      cmp  Y703B,X
46fb d0e3 617:      bne  Y7008
46fd f0f2 618:      beq  Y7016
46ff      619: Y7024:
46ff      620: Y7031:
46ff 20294d 621:      jsr  printsi
4702 20426c 622:      dc.b  " Black Box IS present in system!",
4724      623: ;
4724      624: Y7033:
4724 d8   625:      cld
4725 a900 626:      lda  #0
4727 8dc0d1 627:      sta  BB_Sensel
472a 58   628:      cli
472b 60   629:      rts
472c      630: ;
472c d00829 631: Y703B:      dc.b  $D0,$08,$29,$00
4730      632: ;
4730      633: ;-----
4730      634: ;routine to check for the kpi
4730      635: ;-----
4730      636: ;

```

```

4730      637: kpi_test:
4730 78   638:      sei
4731 a928  639:      lda  #$28
4733 8dff d1 640:      sta  PBIBANK      ;turn on ra
4736 ad01 d6 641:      lda  pbi_ram+1
4739 c943  642:      cmp  #'C'
473b d035  643:      bne  no_kpi
473d ad07 d6 644:      lda  pbi_ram+7
4740 c94b  645:      cmp  #'K'      ;as in KPro
4742 d02e  646:      bne  no_kpi      ;if it ain'
4744 2029 4d 647:      jsr  printsi
4747 204b 50 648:      dc.b  " KPI interface IS present in syste
476d a900  649:      lda  #$00
476f 8dff d1 650:      sta  $d1ff      ; added cod
4772      651: no_kpi:
4772 58   652:      cli
4773 60   653:      rts      ;or whichever
4774      654: ;
4774      655: ;-----
4774      656: ;checking for pal/ntsc machines
4774      657: ;-----
4774      658: pal_ntsc:
4774 ad14 d0 659:      lda  $d014
4777 09f0  660:      ora  #$f0      ; masking h
4779 c9ff  661:      cmp  #$ff      ;
477b f003  662:      beq  .ntsc
477d d030  663:      bne  .pal
477f 60   664:      rts
4780      665: .ntsc:
4780 20de 4c 666:      jsr  OS_QUIK_OFF
4783 a93c  667:      lda  #60
4785 8d89 ff 668:      sta  $ff89
4788 20d5 4c 669:      jsr  OS_QUIK_ON
478b 2029 4d 670:      jsr  printsi
478e 204e 54 671:      dc.b  " NTSC Detected Setting To 60hz", $9
47ae 60   672:      rts
47af      673: .pal:
47af 20de 4c 674:      jsr  OS_QUIK_OFF
47b2 a932  675:      lda  #50
47b4 8d89 ff 676:      sta  $ff89
47b7 20d5 4c 677:      jsr  OS_QUIK_ON
47ba 2029 4d 678:      jsr  printsi
47bd 2050 41 679:      dc.b  " PAL Detected Setting To 50hz", $9B
47dc 60   680:      rts
47dd      681: ;
47dd      682: ;-----
47dd      683: ; Check to see if we are running on an emulator
47dd      684: ;-----
47dd      685: pc_run:
47dd a000  686:      ldy  #$00
47df b91a 03 687: loop_1:      lda  $031a,y
47e2 c948  688:      cmp  #'H'      ; WAS THE EDITOR
47e4 f008  689:      beq  get_vec

```

```

47e6 c8 690:      iny
47e7 c8 691:      iny
47e8 c8 692:      iny
47e9 c024 693:      cpy #36
47eb d0f2 694:      bne  loap_1
47ed 60 695:      rts
47ee      696: ;
47ee      697: get_vec:
47ee a9ff 698:      lda  #$ff
47f0 8d5b49 699:      sta  USP_DATA
47f3 20294d 700:      jsr  printsi
47f6 205043 701:      dc.b " PC Emulator Detected!",$9B,-1
480e 60 702:      rts
480f      703: ;
480f      704: ;-----
480f      705: ; Ape Test
480f      706: ;-----
480f      707: ape_run:
480f ad6448 708:      lda  tammys_os
4812 c988 709:      CMP  #$88
4814 d001 710:      bne  tuc
4816 60 711:      rts
4817      712: tuc:
4817 204a48 713:      jsr  get_ape          ; g
481a 3022 714:      bmi  ape_ero          ; e
481c 20294d 715:      jsr  printsi
481f 204170 716:      dc.b " Ape Interface Detected!",$9b,-1
4839 a9ff 717:      lda  #$ff
483b 8d5b49 718:      sta  usp_data
483e a20b 719: ape_ero:  ldx  #$0b
4840 bd7148 720: ap_ro:   LDA  cmdtab1,x
4843 9d0003 721:      sta  $300,x
4846 ca 722:      dex
4847 10f7 723:      bpl  ap_ro
4849 60 724:      rts
484a      725: ;
484a      726: ; Attempt to download time from APE.
484a      727: ;
484a      728: get_ape:
484a a20b 729:      ldx  #$0b
484c bd0003 730: get_apel:  lda  $300,x
484f 9d7148 731:      sta  cmdtab1,x
4852 ca 732:      dex
4853 10f7 733:      bpl  get_apel
4855      734: ;
4855 a20b 735:      ldx  #$0B          ; s
4857 bd6548 736: ap_set:   lda  cmdtab,x
485a 9d0003 737:      sta  $300,x
485d ca 738:      dex
485e 10f7 739:      bpl  ap_set
4860 18 740:      clc
4861 4c59e4 741:      jmp  $e459
4864      742: ;

```

```

4864 00 743: tammys_os: dc.b 0
4865 744: ;
4865 450193 745: cmdtab: dc.b $45,$01,$93,$40,$00
486a 7e48 746: dc.w cmdtab2
486c 0600 747: dc.w 6
486e 00eea0 748: dc.b $00,$EE,$A0
4871 000000 749: cmdtab1: dc.b 0,0,0,0,0,0,0,0,0,0
487e 000000 750: cmdtab2: dc.b 0,0,0,0,0
4884 751: ;-----
4884 752: ; Check to see if we have a modem
4884 753: ;-----
4884 754: modem_run:
4884 a000 755: ldy #$00
4886 b91a03 756: laap_1: lda $031a,y
4889 c952 757: cmp #'R' ; C
488b f008 758: beq get1_vec
488d c8 759: iny
488e c8 760: iny
488f c8 761: iny
4890 c024 762: cpy #36
4892 d0f2 763: bne laap_1
4894 60 764: rts
4895 765: ;
4895 766: get1_vec:
4895 20294d 767: jsr printsi
4898 20523a 768: dc.b " R: Handler Detected", $9B,-1
48ae 60 769: rts
48af 770: ;
48af 771: ;-----
48af 772: ; Check to see if we have a Printer
48af 773: ;-----
48af 774: printer_run:
48af a000 775: ldy #$00
48b1 b91a03 776: paap_1: lda $031a,y
48b4 c950 777: cmp #'P' ; C
48b6 f008 778: beq pet1_vec
48b8 c8 779: iny
48b9 c8 780: iny
48ba c8 781: iny
48bb c024 782: cpy #36
48bd d0f2 783: bne paap_1
48bf 60 784: rts
48c0 785: ;
48c0 786: pet1_vec:
48c0 20294d 787: jsr printsi
48c3 20503a 788: dc.b " P: Handler Detected", $9B,-1
48d9 60 789: rts
48da 790: ;
48da 791: ;-----
48da 792: ; This Routen Tests for a MIO in system
48da 793: ;-----
48da 794: MIO_TEST:
48da 795:

```



```

48da 8d5649 796:      sta  mio_acc
48dd 8c5749 797:      sty  mio_y
48e0 8e5849 798:      stx  mio_x
48e3 ba      799:      tsx
48e4 8e5949 800:      stx  mio_stack
48e7 78      801:      sei
48e8          802:
48e8 a514    803:      lda  $14
48ea c514    804: tammy:    cmp  $14
48ec f0fc    805:      beq  tammy
48ee 38      806:      SEC                      ; D
48ef ade0d1 807:      lda  Ld1e0
48f2 8d5449 808:      sta  M_HOLD
48f5 ade2d1 809:      lda  Ld1e2
48f8 8d5549 810:      sta  M_HOLD+1
48fb a900    811:      lda  #$00
48fd 8de0d1 812:      sta  Ld1e0
4900 a920    813:      lda  #$20
4902 8de2d1 814:      sta  Ld1e2
4905 a943    815:      lda  #'C'
4907 cd01d6 816:      cmp  pbi_ram+1
490a d00a    817:      bne  NO_MIO
490c cd0ad6 818:      cmp  pbi_ram+10
490f d005    819:      bne  NO_MIO
4911 a901    820:      lda  #$01
4913 8d5a49 821:      sta  mio_there
4916          822:
4916          823: NO_MIO:
4916 a900    824:      lda  #$00                      ; t
4918 8de0d1 825:      sta  $d1e0
491b 8de2d1 826:      sta  $d1e2
491e 58      827:      CLI
491f          828:
491f ae5949 829:      ldx  mio_stack
4922 9a      830:      txs
4923 ad5649 831:      lda  mio_acc
4926 ac5749 832:      ldy  mio_y
4929 ae5849 833:      ldx  mio_x
492c ad5a49 834:      lda  mio_there
492f c900    835:      cmp  #$00
4931 f020    836:      beq  _exit
4933          837:
4933          838:
4933 20294d 839:      jsr  printsi
4936 204943 840:      dc.b  " ICD MIO Present in System!",$9B,-
4953          841:
4953          842: _exit:
4953          843:
4953 60      844:      rts
4954          845:
4954          846:
4954 0000    847: M_HOLD:      dc.b  0,0
4956          848:

```

```

4956 00 849: mio_acc:   dc.b  0      ; accumulator
4957 00 850: mio_y:    dc.b  0      ; Y register
4958 00 851: mio_x:    dc.b  0      ; x register
4959 00 852: mio_stack: dc.b  0      ; hold the stack
495a 00 853: mio_there: dc.b  0      ; holding reg for m
495b    854: ;
495b    855:
495b    856: ;-----
495b    857: ; Need to test for ram at D7xx
495b    858: ;-----
495b    859: ;
495b 0000 860: USP_DATA: dc.b  0,0
495d 00 861: os_type:   dc.b  0
495e    862: USP:
495e ad9dd7 863:      lda  $D79D
4961 8d5c49 864:      sta  USP_DATA+1
4964 a904 865:      lda  #$04
4966 8d9dd7 866:      sta  $D79D
4969 cd9dd7 867:      cmp  $D79D
496c d027 868:      bne  NO_USP
496e ad5c49 869:      lda  USP_DATA+1
4971 8d9dd7 870:      sta  $D79D
4974 a9ff 871:      lda  #$FF
4976 8d5b49 872:      sta  USP_DATA
4979 20294d 873:      jsr  printsi
497c 205261 874:      dc.b  " Ram Detected at $D7xx ", $9B, -1
4995    875: ;
4995 60 876: NO_USP:      RTS
4996    877: ;
4996    878: ;-----
4996    879: ;off = 1  on = 0
4996    880: ;-----
4996    881: gtia_mux:
4996 ad12d0 882:      lda  $d012
4999 c901 883:      cmp  #$01
499b f01b 884:      beq  .a
499d 20294d 885:      jsr  printsi
49a0 204d75 886:      dc.b  " Mux Disable switch "
49b4 cfce 887:      dc.b  <+128>, "ON"
49b6 9bff 888:      dc.b  $9b, -1
49b8    889: .a:
49b8 60 890:      rts
49b9    891: ;
49b9    892: gtia_osp:
49b9 ad12d0 893:      lda  $d012
49bc c901 894:      cmp  #$01
49be f01f 895:      beq  .a
49c0 20294d 896:      jsr  printsi
49c3 205553 897:      dc.b  " USP booting from ramdisk "
49dd 9bff 898:      dc.b  $9b, -1
49df    899: .a:
49df 60 900:      rts
49e0    901: ;

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```

49e0      902: ;-----
49e0      903: ;Let look through all the OS to configure the Siov that is
49e0      904: ;-----
49e0      905: ;
49e0      906: TEST_OS:
49e0 adfecf 907:      lda  $CFFE
49e3 8d6448 908:      sta  tammys_os
49e6 c910 909:      cmp  #$10          ; xl os det
49e8 d033 910:      bne  .USP1
49ea ad5ae4 911:      lda  $E459+1
49ed c933 912:      cmp  #$33
49ef f029 913:      beq  .USPA
49f1 c970 914:      cmp  #$70          ; gotta loo
49f3 f025 915:      beq  .USPa         ; use to be
49f5 a900 916:      lda  #$00          ; 00 for hi
49f7 8d5b49 917:      sta  USP_DATA
49fa a901 918:      lda  #$01
49fc 8d5d49 919:      sta  os_type
49ff 20294d 920:      jsr  printsi
4a02 205374 921:      dc.b  " Standard OS Detected", $9B, -1
4a19 60 922:      rts
4a1a      923: ;
4a1a 4c624b 924: .USPA:      jmp  .USP6
4a1d      925: ;
4a1d      926: .USP1:
4a1d c9fe 927:      cmp  #$FE          ; turboss d
4a1f d025 928:      bne  .USP2
4a21 a900 929:      lda  #$00          ; 00 for hi
4a23 8d5b49 930:      sta  USP_DATA
4a26 a902 931:      lda  #$02
4a28 8d5d49 932:      sta  os_type
4a2b 20294d 933:      jsr  printsi
4a2e 205475 934:      dc.b  " Turboss OS Detected!", $9B, -1
4a45 60 935:      rts
4a46      936: ;
4a46      937: .USP2:
4a46 c990 938:      cmp  #$90          ; Mux
4a48 d024 939:      bne  .USP3
4a4a a9ff 940:      lda  #$FF          ; 00 for hi
4a4c 8d5b49 941:      sta  USP_DATA
4a4f a980 942:      lda  #$80
4a51 8d5d49 943:      sta  os_type
4a54 209649 944:      jsr  gtia_mux
4a57 20294d 945:      jsr  printsi
4a5a 204d75 946:      dc.b  " Mux OS Detected!", $9B, -1
4a6d 60 947:      rts
4a6e      948: ;
4a6e      949: .USP3:
4a6e c988 950:      cmp  #$88          ; usp
4a70 d06c 951:      bne  .USP4
4a72 a900 952:      lda  #$00          ; 00 for hi
4a74 8d5b49 953:      sta  USP_DATA
4a77 a907 954:      lda  #$07

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4a79 8d5d49 955:      sta  os_type
4a7c 200b4c 956:      jsr  my_wait
4a7f 20b949 957:      jsr  gtia_usp
4a82 20294d 958:      jsr  printsi
4a85 20556c 959:      dc.b  " Ultra Speed Plus OS Detected!",$9
4aa5 ad9dd7 960:      lda  $D79D
4aa8 c980 961:      cmp  #$80          ; USP Ramdi
4aaa d031 962:      bne  .NNR4
4aac a904 963:      lda  #$04          ; Normal Dr
4aae 8d9dd7 964:      sta  $D79D
4ab1 200b4c 965:      jsr  my_wait
4ab4 20294d 966:      jsr  printsi
4ab7 204434 967:      dc.b  " D4: Ramdisk Removed, D4: Installe
4add 60 968: .NNR4:      RTS
4ade      969: ;
4ade      970: .USP4:
4ade      971: ;
4ade c900 972:      cmp  #$00          ; omnimon
4ae0 d053 973:      bne  .USP5
4ae2 aca5cd 974:      ldy  $CDA5
4ae5 c060 975:      cpy  #$60
4ae7 f025 976:      beq  .TBPLUS
4ae9      977: ;
4ae9 a900 978:      lda  #$00          ; 00 for hi
4aeb 8d5b49 979:      sta  USP_DATA
4aee a904 980:      lda  #$04
4af0 8d5d49 981:      sta  os_type
4af3 20294d 982:      jsr  printsi
4af6 204f6d 983:      dc.b  " Omnimon OS Detected!",$9B,-1
4b0d 60 984:      rts
4b0e      985: ;
4b0e      986: .TBPLUS:
4b0e a900 987:      lda  #$00          ; 00 for hi
4b10 8d5b49 988:      sta  USP_DATA
4b13 a903 989:      lda  #$03
4b15 8d5d49 990:      sta  os_type
4b18 20294d 991:      jsr  printsi
4b1b 205475 992:      dc.b  " Turboss + OS Detected!",$9B,-1
4b34 60 993:      rts
4b35      994: ;
4b35      995: .USP5:
4b35      996: ;
4b35 c9f3 997:      cmp  #$F3          ; omniview
4b37 d026 998:      bne  .USPAA
4b39 a900 999:      lda  #$00          ; 00 for hi
4b3b 8d5b49 1000:      sta  USP_DATA
4b3e a905 1001:      lda  #$05
4b40 8d5d49 1002:      sta  os_type
4b43 20294d 1003:      jsr  printsi
4b46 204f6d 1004:      dc.b  " OmniView OS Detected!",$9B,-1
4b5e 60 1005:      rts
4b5f      1006: ;
4b5f 4cec4b 1007: .USPAA:      jmp  .OSDT

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4b62      1008: ;
4b62      1009: .USP6:
4b62 ad5ae4 1010:      lda    $e459+1
4b65 c970  1011:      cmp    #$70          ; gotta loo
4b67 d028  1012:      bne    .USP7
4b69 a9ff  1013:      lda    #$FF          ; 00 for hi
4b6b 8d5b49 1014:      sta    USP_DATA
4b6e a982  1015:      lda    #$82
4b70 8d5d49 1016:      sta    os_type
4b73 20294d 1017:      jsr    printsi
4b76 204d79 1018:      dc.b   " My IDE 3.1 OS Detected!",$9B,-1
4b90 60    1019:      rts
4b91      1020: .usp7:
4b91      1021:
4b91 ad5ae4 1022:      lda    $e459+1
4b94 c98f  1023:      cmp    #$8f          ; gotta loo
4b96 d028  1024:      bne    .USP8
4b98 a9ff  1025:      lda    #$FF          ; 00 for hi
4b9a 8d5b49 1026:      sta    USP_DATA
4b9d a981  1027:      lda    #$81
4b9f 8d5d49 1028:      sta    os_type
4ba2 20294d 1029:      jsr    printsi
4ba5 204d79 1030:      dc.b   " My IDE 4.2 OS Detected!",$9B,-1
4bbf 60    1031:      rts
4bc0      1032:
4bc0      1033:
4bc0      1034:
4bc0      1035:
4bc0      1036: .USP8:
4bc0 c908  1037:      cmp    #$08          ; Looking f
4bc2 d028  1038:      bne    .OSDT
4bc4 a900  1039:      lda    #$00          ; 00 for hi
4bc6 8d5b49 1040:      sta    USP_DATA
4bc9 a906  1041:      lda    #$06
4bcb 8d5d49 1042:      sta    os_type
4bce 20294d 1043:      jsr    printsi
4bd1 204170 1044:      dc.b   " Ape Warp + OS Detected!",$9B,-1
4beb 60    1045:      rts
4bec      1046: .OSDT:
4bec a900  1047:      lda    #$00
4bee 8d5b49 1048:      sta    USP_DATA
4bf1 20294d 1049:      jsr    printsi
4bf4 20556e 1050:      dc.b   " Unknown OS Detected",$9B,-1
4c0a 60    1051:      rts
4c0b      1052: ;
4c0b      1053: ;
4c0b      1054: ;
4c0b      1055: MY_WAIT:
4c0b a514  1056:      lda    RTCLOK+2
4c0d c514  1057: .A:      CMP    RTCLOK+2
4c0f d0fc  1058:      bne    .A
4c11 60    1059:      RTS
4c12      1060: ;

```

```

4c12      1061: ;-----
4c12      1062: ; Test of the SmartOS board
4c12      1063: ;-----
4c12      1064: TEST_SMARTOS:
4c12 ad11d0 1065:      lda    $D011
4c15 8dbe4c 1066:      sta    SMOS_DATA+2
4c18      1067: ;
4c18 200b4c 1068:      jsr    MY_WAIT
4c1b ad01d3 1069:      lda    PORTB
4c1e 8dbd4c 1070:      sta    SMOS_DATA+1
4c21      1071: ;
4c21 08     1072:      php
4c22 78     1073:      sei
4c23 ad0ed4 1074:      lda    NMIEN
4c26 48     1075:      pha
4c27 a900   1076:      lda    #$00
4c29 8d0ed4 1077:      sta    NMIEN
4c2c      1078: ;
4c2c adbe4c 1079:      lda    SMOS_DATA+2
4c2f c901   1080:      cmp    #$01
4c31 f005   1081:      beq    NOT_IN_ROM
4c33 a940   1082:      lda    #$40
4c35 8dbc4c 1083:      sta    SMOS_DATA
4c38      1084: ;
4c38      1085: NOT_IN_ROM:
4c38 a9a0   1086:      lda    #$A0
4c3a 8d80d3 1087:      sta    SMARTOS
4c3d a9ff   1088:      lda    #$FF
4c3f 8d00e0 1089:      sta    Char_Set
4c42 ad00e0 1090:      lda    Char_Set
4c45 c9ff   1091:      cmp    #$FF
4c47 f00d   1092:      beq    SMOS_HERE
4c49      1093: ;
4c49 68     1094:      pla
4c4a 8d0ed4 1095:      sta    NMIEN
4c4d 28     1096:      plp
4c4e adbd4c 1097:      lda    SMOS_DATA+1
4c51 8d01d3 1098:      sta    PORTB
4c54 58     1099:      cli
4c55 60     1100:      rts
4c56      1101: ;
4c56      1102: SMOS_HERE:
4c56 a900   1103:      lda    #$00
4c58 8d00e0 1104:      sta    char_Set
4c5b adbc4c 1105:      lda    SMOS_DATA
4c5e 8d80d3 1106:      sta    SMARTOS
4c61      1107: ;
4c61 68     1108:      pla
4c62 8d0ed4 1109:      sta    NMIEN
4c65 28     1110:      plp
4c66 adbd4c 1111:      lda    SMOS_DATA+1
4c69 8d01d3 1112:      sta    PORTB
4c6c 58     1113:      cli

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4c6d      1114: ;
4c6d 200b4c 1115:      jsr  MY_WAIT
4c70 200b4c 1116:      jsr  MY_WAIT
4c73 200b4c 1117:      jsr  MY_WAIT
4c76      1118: ;
4c76 20294d 1119:      jsr  printsi
4c79 20536d 1120:      dc.b  " Smart OS Detected in ",-1
4c90 adbc4c 1121:      lda  SMOS_DATA
4c93 c940  1122:      cmp  #$40
4c95 d00f  1123:      bne  .NOT_IN_ROM
4c97 20294d 1124:      jsr  printsi
4c9a 526fd 1125:      dc.b  "Rom Mode!", $9b,-1
4ca5 60    1126:      rts
4ca6      1127: ;
4ca6      1128: .NOT_IN_ROM:
4ca6 adbc4c 1129:      lda  SMOS_DATA
4ca9 c980  1130:      cmp  #$80
4cab d00e  1131:      bne  .NOT_IN_RAM
4cad 20294d 1132:      jsr  printsi
4cb0 d2e1ed 1133:      dc.b  <+128>,"Ram"
4cb3 204d6f 1134:      dc.b  " Mode!", $9b,-1
4cbb      1135: .NOT_IN_RAM:
4cbb 60    1136:      rts
4cbc      1137: ;
4cbc 800000 1138: SMOS_DATA:  dc.b  $80,0,0
4cbf      1139: ;
4cbf      1140: ;
4cbf      1141: ;~~~~~
4cbf      1142: ; OS on and off ROUTEEN
4cbf      1143: ;~~~~~
4cbf      1144: ;
4cbf      1145:
4cbf      1146: os_off:
4cbf 78    1147:      SEI
4cc0 ad01d3 1148:      IDA  PORTB
4cc3 29fe  1149:      AND  #$FE
4cc5 8d01d3 1150:      STA  PORTB
4cc8 58    1151:      CLI
4cc9 60    1152:      RTS
4cca      1153: ;
4cca      1154: os_on:
4cca 78    1155:      SEI
4ccb ad01d3 1156:      IDA  PORTB
4cce 0901  1157:      ORA  #1
4cd0 8d01d3 1158:      STA  PORTB
4cd3 58    1159:      CLI
4cd4 60    1160:      RTS
4cd5      1161:
4cd5      1162: ;
4cd5 ad01d3 1163: OS_QUIK_ON: lda  PORTB
4cd8 0901  1164:      ora  #1
4cda 8d01d3 1165:      sta  PORTB
4cdd 60    1166:      rts

```

```

4cde      1167: ;
4cde ad01d3 1168: OS_QUICK_OFF: lda  PORTB
4ce1 29fe 1169:      and  #$FE
4ce3 8d01d3 1170:      sta  PORTB
4ce6 60 1171:      rts
4ce7      1172:
4ce7      1173:
4ce7      1174: ;
4ce7 c961 1175: upcase:      cmp  #'a'
4ce9 9009 1176:      bcc  .xupcase
4ceb c97b 1177:      cmp  #'z'+1
4ced f005 1178:      beq  .xupcase
4cef b003 1179:      bcs  .xupcase
4cf1 38 1180:      sec
4cf2 e920 1181:      sbc  #32
4cf4 60 1182: .xupcase: rts
4cf5      1183:
4cf5      1184: ;   Get character
4cf5      1185: ;   -----
4cf5      1186: ; out:
4cf5      1187: ;   A   = character (all others preserved)
4cf5      1188: ;
4cf5 20fb4c 1189: GET_KEY: JSR ZGETCH
4cf8 a900 1190: ZCH:   LDA #0
4cfa 60 1191:      RTS
4cfb      1192: ;
4cfb 205b4d 1193: ZGETCH: JSR SAVER
4cfe 20074d 1194:      JSR ZPHG
4d01 8df94c 1195:      STA ZCH+1
4d04 4c8b4d 1196:      JMP RESALL
4d07      1197: ;
4d07 ad25e4 1198: ZPHG:   LDA $E425
4d0a 48 1199:      PHA
4d0b ad24e4 1200:      LDA $E424
4d0e 48 1201:      PHA
4d0f 60 1202:      RTS
4d10      1203: ;
4d10      1204: ;
4d10      1205: ;
4d10      1206: ;
4d10      1207: ;
4d10      1208: ;=====
4d10      1209: ;   print/input routines
4d10      1210: ;=====
4d10      1211: ;
4d10      1212: ;   Print character
4d10      1213: ;   -----
4d10      1214: ; in:
4d10      1215: ;   A   = character to print
4d10      1216: ; out:
4d10      1217: ;   all registers preserved
4d10      1218: ;
4d10 205b4d 1219: ECHO:   JSR SAVER

```



```

4d13 20194d 1220:      JSR ZOUT
4d16 4c8b4d 1221:      JMP RESALL
4d19      1222: ;
4d19 8d254d 1223: ZOUT:  STA ZTEMP+1
4d1c ad4703 1224:      LDA $0347
4d1f 48      1225:      PHA
4d20 ad4603 1226:      LDA $0346
4d23 48      1227:      PHA
4d24 a900      1228: ZTEMP: LDA #0
4d26 a200      1229:      LDX #0          ;1      ; force NO
4d28 60      1230:      RTS
4d29      1231: ;
4d29      1232: ;
4d29      1233: ;
4d29      1234: ;
4d29      1235: ;      Print text
4d29      1236: ;      -----
4d29      1237: ; out:
4d29      1238: ;      all registers preserved
4d29      1239: ; notes:
4d29      1240: ;      This print routine will print all characters
4d29      1241: ;      following the JSR PRINT until a delimiter of
4d29      1242: ;      -1 ($FF) is reached. PRINT will return to the
4d29      1243: ;      point one byte beyond the delimiter.
4d29      1244: ;
4d29      1245: printsi:
4d29 205b4d 1246:      JSR SAVER
4d2c ba      1247:      TSX
4d2d bd0501 1248:      LDA $0105,X
4d30 8d3c4d 1249:      STA ZOCH+1
4d33 bd0601 1250:      LDA $0106,X
4d36 8d3d4d 1251:      STA ZOCH+2
4d39      1252: ;
4d39 a001      1253:      LDY #1
4d3b b9ffff 1254: ZOCH:  LDA $FFFF,Y
4d3e c9ff      1255:      CMP #$FF
4d40 f006      1256:      BEQ ZECHO
4d42 20104d 1257:      JSR ECHO
4d45 c8      1258:      INY
4d46 d0f3      1259:      BNE ZOCH
4d48 98      1260: ZECHO:  TYA
4d49 18      1261:      CLC
4d4a 7d0501 1262:      ADC $0105,X
4d4d 9d0501 1263:      STA $0105,X
4d50 bd0601 1264:      LDA $0106,X
4d53 6900      1265:      ADC #0
4d55 9d0601 1266:      STA $0106,X
4d58 4c8b4d 1267:      JMP RESALL
4d5b      1268: ;
4d5b      1269: ;
4d5b      1270: ;
4d5b      1271: ;
4d5b      1272: ;

```

```

4d5b 1273: ;
4d5b 1274: ;   SAVE & RESTORE registers
4d5b 1275: ;   -----
4d5b 1276: ;
4d5b 08 1277: SAVER: PHP
4d5c 48 1278:   PHA
4d5d 48 1279:   PHA
4d5e 48 1280:   PHA
4d5f 08 1281:   PHP
4d60 48 1282:   PHA
4d61 8a 1283:   TXA
4d62 48 1284:   PHA
4d63 ba 1285:   TSX
4d64 bd0901 1286:   LDA $0109,X
4d67 9d0501 1287:   STA $0105,X
4d6a bd0701 1288:   LDA $0107,X
4d6d 9d0901 1289:   STA $0109,X
4d70 bd0101 1290:   LDA $0101,X
4d73 9d0701 1291:   STA $0107,X
4d76 bd0801 1292:   LDA $0108,X
4d79 9d0401 1293:   STA $0104,X
4d7c bd0601 1294:   LDA $0106,X
4d7f 9d0801 1295:   STA $0108,X
4d82 98 1296:   TYA
4d83 9d0601 1297:   STA $0106,X
4d86 68 1298:   PLA
4d87 aa 1299:   TAX
4d88 68 1300:   PLA
4d89 28 1301:   PLP
4d8a 60 1302:   RTS
4d8b 1303: ;
4d8b 68 1304: RESALL: PLA
4d8c a8 1305:   TAY
4d8d 68 1306:   PLA
4d8e aa 1307:   TAX
4d8f 68 1308:   PLA
4d90 28 1309:   PLP
4d91 60 1310:   RTS
4d92 1311: ;
4d92 1312: ;
4d92 1313: ;
4d92 1314: ;
4d92 1315: ;-----
4d92 1316: ;
4d92 1317: ;
4d92 1318: X_L4034:
4d92 1319: ;
4d92 1320: X_SIOV:
4d92 4c7f07 1321:   jmp  $77f
4d95 1322: ;
4d95 1323: ;
4d95 1324: L_SETVBV:
4d95 adf910 1325:   lda  $10f9

```

```

4d98 f00c 1326:      beq  L_E46D
4d9a ad0503 1327: L_E461:      lda  DBUFLO+1
4d9d c9c0 1328:      cmp  #$C0      ;192
4d9f 9002 1329:      bcc  L_E46A
4da1 b010 1330:      bcs  L_E47A
4da3 4cf910 1331: L_E46A:      jmp  $10f9      ; g
4da6      1332: ;
4da6 a211 1333: L_E46D:      idx  #17      ; $
4da8      1334: L_E46F:
4da8 bd4f4e 1335: w9a01:      lda  L_E516,X
4dab 9df910 1336:      sta  $10f9,X
4dae ca 1337:      dex
4daf 10f7 1338:      bpl  L_E46F
4db1 d0e7 1339:      bne  L_E461
4db3 ad0803 1340: L_E47A:      lda  DBYTLO
4db6 49ff 1341:      eor  #$FF
4db8 aa 1342:      tax
4db9 e8 1343: L_E480:      INX
4dba 8e4a4e 1344: w9a02:      stx  L_E511
4dbd a53d 1345: L_E484:      lda  $3D
4dbf 8d4d4e 1346: w9a03:      sta  L_E514
4dc2 a53e 1347:      lda  $3D+1
4dc4 8d4e4e 1348: w9a04:      sta  L_E514+1
4dc7 ad0403 1349:      lda  DBUFLO
4dca 8d4b4e 1350: w9a05:      sta  L_E512
4dcd 38 1351:      sec
4dce      1352: L_E495:
4dce ed4a4e 1353: w9a06:      SBC  L_E511
4dd1 853d 1354:      sta  $3D
4dd3 ad0503 1355:      lda  DBUFLO+1
4dd6 8d4c4e 1356: w9a07:      sta  L_E512+1
4dd9 e900 1357:      sbc  #0
4ddb 853e 1358:      sta  $3D+1
4ddd bd0004 1359: L_E4A4:      lda  casetbuf,X
4de0 9d604e 1360: w9a08:      sta  L_E527,X
4de3 e8 1361:      inx
4de4 d0f7 1362:      bne  L_E4A4
4de6 ad0303 1363:      lda  DSTATS
4de9 f015 1364:      beq  L_E4C7
4deb 1019 1365:      bpl  L_E4CD
4ded d000 1366:      bne  L_E4B6
4def      1367: L_E4B6:
4def ac4a4e 1368: w9a09:      LDY  L_E511
4df2 b13d 1369: L_E4B9:      lda  ($3D),Y
4df4 990004 1370:      sta  casetbuf,Y
4df7 c8 1371:      iny
4df8 d0f8 1372:      bne  L_E4B9
4dfa 203c4e 1373: w9a10:      jsr  L_E503
4dfd 4c184e 1374: w9a11:      jmp  L_E4DF
4e00      1375: ;
4e00      1376: L_E4C7:
4e00 203c4e 1377: w9a12:      jsr  L_E503
4e03 4c184e 1378: w9a13:      jmp  L_E4DF

```

```
4e06      1379: ;
4e06      1380: L_E4CD:
4e06 203c4e 1381: w9a14:    jsr   L_E503
4e09 98    1382:          tya
4e0a aa    1383:          tax
4e0b ac4a4e 1384: w9a15:    ldy   L_E511
4e0e b90004 1385: L_E4D5:    lda   casetbuf,Y
4e11 913d   1386:          sta   ($3D),Y
4e13 c8    1387:          iny
4e14 d0f8   1388:          bne   L_E4D5
4e16 8a    1389:          txa
4e17 a8    1390:          tay
4e18      1391: L_E4DF:
4e18 ae4b4e 1392: w9a16:    ldx   L_E512
4e1b ad4c4e 1393: w9a17:    lda   L_E512+1
4e1e 8e0403 1394:          stx   DBUFLO
4e21 8d0503 1395:          sta   DBUFLO+1
4e24 ad4d4e 1396: w9a18:    lda   L_E514
4e27 853d   1397: L_E4EE:    sta   $3D
4e29 ad4e4e 1398: w9a19:    lda   L_E514+1
4e2c 853e   1399:          sta   $3D+1
4e2e ae4a4e 1400: w9a20:    ldx   L_E511
4e31      1401: L_E4F8:
4e31 bd604e 1402: w9a21:    lda   L_E527,X
4e34 9d0004 1403:          sta   casetbuf,X
4e37 e8    1404:          inx
4e38 d0f7   1405:          bne   L_E4F8
4e3a 98    1406:          tya
4e3b 60    1407:          rts
4e3c      1408: ;
4e3c      1409: L_E503:
4e3c ad4a4e 1410: w9a22:    lda   L_E511
4e3f 8d0403 1411:          sta   DBUFLO
4e42 a904   1412:          lda   #4
4e44 8d0503 1413:          sta   DBUFLO+1
4e47 4cf910 1414: L_E50E:    jmp   $10f9
4e4a      1415: ;
4e4a 00    1416: L_E511:    dc.b  0
4e4b 0000   1417: L_E512:    dc.w  0
4e4d 0000   1418: L_E514:    dc.w  0
4e4f      1419:
4e4f ad01d3 1420: L_E516:    lda   PORTB
4e52 48    1421:          pha
4e53 0901   1422:          ora   #1
4e55 8d01d3 1423:          sta   PORTB
4e58 2059e4 1424:          jsr   SIOV
4e5b 68    1425:          pla
4e5c 8d01d3 1426:          sta   PORTB
4e5f 60    1427:          rts
4e60      1428: ;
4e60 00    1429: L_E527:    dc.b  0
4e61      1430:
4e61 b132   1431: L_E528:    lda   (BUFRLO),Y
```

```
4e63 8531 1432:      sta  $31
4e65 8d0dd2 1433:     sta  SEROUT
4e68 c8 1434:      iny
4e69 2c 1435: L_E530:      dc.b  $2C
4e6a e633 1436: L_E531:      INC  BUFRLO+1
4e6c c635 1437:      dec  bfenlo+1
4e6e 300d 1438:      bmi  L_E544
4e70 b132 1439: L_E537:      lda  (BUFRLO),Y
4e72 20724f 1440: w9a23:      jsr  L_E639
4e75 202a4f 1441: w9a24:      jsr  L_E5F1
4e78 c8 1442:      iny
4e79 d0f5 1443:      bne  L_E537
4e7b f0ed 1444:      beq  L_E531
4e7d c434 1445: L_E544:      CPY  BFENLO
4e7f f00c 1446:      beq  L_E554
4e81 b132 1447:      lda  (BUFRLO),Y
4e83 20724f 1448: w9a25:      jsr  L_E639
4e86 202a4f 1449: w9a26:      jsr  L_E5F1
4e89 c8 1450:      iny
4e8a 4c7d4e 1451: w9a27:      jmp  L_E544
4e8d      1452: ;
4e8d a531 1453: L_E554:      lda  $31
4e8f 20724f 1454: w9a28:      jsr  L_E639
4e92 ad0ed2 1455: L_E559:      lda  IRQST
4e95 2908 1456:      and  #8
4e97 d0f9 1457:      bne  L_E559
4e99 a9c0 1458:      lda  #$C0
4e9b 8d0ed2 1459:      sta  IRQEN
4e9e a200 1460:      ldx  #0
4ea0 a002 1461:      ldy  #2
4ea2 4ce04e 1462: w9a29:      jmp  L_E5A7
4ea5      1463: ;
4ea5      1464: L_E56C:
4ea5 a900 1465:      lda  #0
4ea7 8531 1466:      sta  $31
4ea9 a8 1467:      tay
4eaa 2c 1468: L_E571:      dc.b  $2C
4eab e633 1469: L_E572:      INC  BUFRLO+1
4ead c635 1470:      dec  bfenlo+1
4eaf 300f 1471:      bmi  L_E587
4eb1      1472: L_E578:
4eb1 20324f 1473: w9a30:      jsr  L_E5F9
4eb4 b026 1474:      bcs  L_E5A3
4eb6 9132 1475:      sta  (BUFRLO),Y
4eb8 202a4f 1476: w9a31:      jsr  L_E5F1
4ebb c8 1477:      iny
4ebc d0f3 1478:      bne  L_E578
4ebe f0eb 1479:      beq  L_E572
4ec0 c434 1480: L_E587:      CPY  BFENLO
4ec2 f00d 1481:      beq  L_E598
4ec4 20324f 1482: w9a32:      jsr  L_E5F9
4ec7 b013 1483:      bcs  L_E5A3
4ec9 9132 1484:      sta  (BUFRLO),Y
```

```

4ecb 202a4f 1485: w9a33:    jsr  L_E5F1
4ece c8 1486:          iny
4ecf d0ef 1487:          bne  L_E587
4ed1      1488: L_E598:
4ed1 20324f 1489: w9a34:    jsr  L_E5F9
4ed4 c531 1490:          cmp  $31
4ed6 d002 1491:          bne  L_E5A1
4ed8 18 1492:          clc
4ed9 60 1493:          rts
4eda      1494: ;
4eda a98f 1495: L_E5A1:    lda  #143  ;$8F
4edc 8530 1496: L_E5A3:    sta  $30
4ede 38 1497:          sec
4edf 60 1498:          rts
4ee0      1499: ;
4ee0      1500: L_E5A7:
4ee0 20104f 1501: w9a35:    jsr  L_E5D7
4ee3 208c4f 1502: w9a36:    jsr  L_E653
4ee6 a93c 1503: L_E5AD:    lda  #$3C          ;60
4ee8 8d03d3 1504:          sta  PBCTL
4eeb 20324f 1505: w9a37:    jsr  L_E5F9
4eee b011 1506:          bcs  L_E5C8
4ef0 c941 1507:          cmp  #'A'          ; $41 ; Ma
4ef2 f013 1508:          beq  L_E5CE
4ef4 c943 1509:          cmp  #'C'          ;$43
4ef6 f00f 1510:          beq  L_E5CE
4ef8 c945 1511:          cmp  #'E'          ;$45
4efa f003 1512:          beq  L_E5C6
4efc a98b 1513:          lda  #139          ;$8B
4efe 2c 1514:          dc.b $2C
4eff a990 1515: L_E5C6:    lda  #144          ;$9
4f01 8530 1516: L_E5C8:    sta  $30
4f03 c98b 1517:          cmp  #139          ;$8B
4f05 38 1518:          sec
4f06 60 1519:          rts
4f07      1520: ;
4f07 a000 1521: L_E5CE:    LDY  #0
4f09 a200 1522:          ldx  #0
4f0b 20104f 1523: w9a38:    jsr  L_E5D7
4f0e 18 1524:          clc
4f0f 60 1525:          rts
4f10      1526: ;
4f10      1527: L_E5D7:
4f10 a9cf 1528:          lda  # low $07CF
4f12 8d2602 1529:          sta  $0226
4f15 a907 1530:          lda  # high $07CF
4f17 8d2702 1531:          sta  $0226+1
4f1a a900 1532:          lda  #0
4f1c 8d1803 1533:          sta  STACKP
4f1f a901 1534:          lda  #1
4f21 8530 1535:          sta  $30
4f23 8e1902 1536: L_E5EA:    STX  $0218+1
4f26 8c1802 1537:          sty  $0218

```

```

4f29 60 1538:      rts
4f2a      1539: ;
4f2a      1540: L_E5F1:
4f2a 18 1541:      clc
4f2b 6531 1542:      adc $31
4f2d 6900 1543:      adc #0
4f2f 8531 1544:      sta $31
4f31 60 1545:      rts
4f32      1546: ;
4f32 2c1803 1547: L_E5F9:      BIT STACKP
4f35 3037 1548:      bmi L_E635
4f37 a920 1549:      lda #$20
4f39 2c0ed2 1550:      bit IRQST
4f3c 101d 1551:      bpl L_E622
4f3e d0f2 1552:      bne L_E5F9
4f40      1553: ;
4f40      1554: ;
4f40 a9df 1555: L_E607:      lda #$DF
4f42 8d0ed2 1556:      sta IRQEN
4f45 a9f8 1557:      lda #$F8
4f47 8d0ed2 1558:      sta IRQEN
4f4a ad0fd2 1559:      lda SKSTAT
4f4d 8d0ad2 1560:      sta SKRES
4f50 1016 1561:      bpl L_E62F
4f52 2920 1562:      and #$20
4f54 f015 1563:      beq L_E632
4f56 ad0dd2 1564:      lda SERIN
4f59 18 1565:      clc
4f5a 60 1566:      rts
4f5b      1567: ;
4f5b a95f 1568: L_E622:      lda #$5F
4f5d 8d0ed2 1569:      sta IRQEN
4f60 a9f8 1570:      lda #$F8
4f62 8d0ed2 1571:      sta IRQEN
4f65 a980 1572:      lda #128      ;$80 user break abo
4f67 2c 1573:      dc.b $2C
4f68 a98c 1574: L_E62F:      lda #140      ;$8c serial
4f6a 2c 1575:      dc.b $2C
4f6b a98e 1576: L_E632:      lda #142      ;$8e sio se
4f6d 2c 1577:      dc.b $2C
4f6e a98a 1578: L_E635:      lda #138      ;$8a drive
4f70 38 1579:      sec
4f71 60 1580:      rts
4f72      1581: ;
4f72 48 1582: L_E639:      PHA
4f73 ad0ed2 1583: L_E63A:      lda IRQST
4f76 2910 1584:      and #$10
4f78 d0f9 1585:      bne L_E63A
4f7a a9ef 1586:      lda #$EF
4f7c 8d0ed2 1587: L_E643:      sta IRQEN
4f7f a9f8 1588:      lda #$F8
4f81 8d0ed2 1589:      sta IRQEN
4f84 68 1590:      pla

```

```

4f85 8d0dd2 1591:      sta  SEROUT
4f88 60    1592:      rts
4f89      1593: ;
4f89      1594: ;
4f89      1595: ; Just noise being made I think
4f89      1596: ;
4f89      1597: ;
4f89      1598: L_E650:
4f89 a923 1599:      lda  #$23      ; 35 dec
4f8b 2c    1600:      dc.b  $2C
4f8c a913 1601: L_E653:      lda  #$13      ;19 dec
4f8e 8d0fd2 1602:      sta  SKCTL
4f91 8d0ad2 1603:      sta  SKRES
4f94 a928 1604:      lda  #$28
4f96 8d08d2 1605:      sta  AUDCTL
4f99 a541 1606:      lda  SOUND
4f9b f003 1607:      beq  L_E667
4f9d a9a8 1608:      lda  #168
4f9f 2c    1609:      dc.b  $2C
4fa0 a9a0 1610: L_E667:      lda  #160
4fa2 8d07d2 1611:      sta  AUDC4
4fa5 a900 1612: L_E66C:      lda  #0
4fa7 8d0ed2 1613:      sta  IRQEN
4faa a9f8 1614:      lda  #$F8
4fac 8d0ed2 1615:      sta  IRQEN
4faf 60    1616:      rts
4fb0      1617: ;
4fb0      1618: ;
4fb0      1619: ; sttmot: calculate timeout value from dtimlo
4fb0      1620: ;
4fb0      1621: L_E677:
4fb0 ad0603 1622:      lda  DTIMLO
4fb3 6a    1623:      ror
4fb4 6a    1624:      ror
4fb5 a8    1625:      tay
4fb6 293f 1626:      and  #$3F      ; not sure if this
4fb8 aa    1627:      tax
4fb9 98    1628:      tya
4fba 6a    1629:      ror
4fbb 29c0 1630:      and  #$C0      ; not sure if this
4fbd a8    1631:      tay
4fbe 60    1632:      rts
4fbf      1633: ;
4fbf      1634: ;
4fbf      1635: ; BEEP BEEP BEEP
4fbf      1636: ; on disk io
4fbf      1637: ;
4fbf      1638: L_E686:
4fbf a510 1639:      lda  POKMSK
4fc1 8d0ed2 1640:      sta  IRQEN
4fc4 a206 1641:      ldx  #6
4fc6 a900 1642:      lda  #0
4fc8 9d01d2 1643: L_E68F:      sta  AUDC1,X

```



```

4fcb ca 1644:      dex
4fcc ca 1645:      dex
4fcd 10f9 1646:      bpl  L_E68F
4fcf 60 1647: L_E696:      RTS
4fd0      1648: ;
4fd0      1649: ;
4fd0      1650: ; Drive Handler table to support 8 drives
4fd0      1651: ; Hope this is it
4fd0      1652: ;
4fd0      1653: ;
4fd0      1654: L_E697:
4fd0      1655: ; this had a byte added for the HISpeed Status of drv 9
4fd0 000000 1656:      dc.b  0,0,0,0
4fd4 000000 1657:      dc.b  0,0,0,0
4fd8      1658: ;      dc.b  0          ;le
4fd8      1659: ;
4fd8      1660: ;
4fd8 a208 1661: L_E69F:      ldx  # low L_E69F-L_E697 ; Shoul
4fda      1662: ;
4fda bd0203 1663: L_E6A1:      lda  DCOMND,X
4fdd 48 1664:      pha
4fde ca 1665:      dex
4fdf 10f9 1666:      bpl  L_E6A1
4fe1      1667: ;
4fe1      1668: ; return high speed command in
4fe1      1669: ; spartados
4fe1      1670: ;
4fe1 a93f 1671:      lda  #'?' ;$3F
4fe3 8d0203 1672:      sta  DCOMND
4fe6 a201 1673:      ldx  #1
4fe8 8e0403 1674:      stx  DBUFLO
4feb 8e0803 1675:      stx  DBYTLO
4fee 8e0603 1676:      stx  DTIMLO
4ff1 ca 1677:      dex
4ff2 8e0503 1678:      stx  DBUFLO+1
4ff5 8e0903 1679:      stx  DBYTLO+1
4ff8 a940 1680:      lda  #$40
4ffa 8d0303 1681:      sta  DSTATS
4ffd a904 1682:      lda  #4
4fff 8d0a03 1683:      sta  DAUX1
5002 20bd4d 1684: w9a39:      jsr  L_E484
5005 3008 1685:      bmi  L_E6D6
5007 a501 1686:      lda  NGFLAG
5009 ac0103 1687:      ldy  DUNIT
500c 99cf4f 1688: w9a40:      sta  L_E697-1,Y
500f a200 1689: L_E6D6:      ldx  #0
5011 68 1690: L_E6D8:      PLA
5012 9d0203 1691:      sta  DCOMND,X
5015 e8 1692:      inx
5016 e009 1693:      cpx  #low L_E69F-L_E697+1      ; $
5018 d0f7 1694:      bne  L_E6D8
501a 60 1695:      rts
501b      1696: ;

```

```

501b a208 1697: L_E6E2:      idx   #low L_E69F-L_E697
501d a9ff 1698:      lda   #$FF
501f      1699: L_E6E6:
501f 9dcf4f 1700: w9a41:      sta   L_E697-1,X
5022 ca   1701:      dex
5023 d0fa 1702:      bne   L_E6E6
5025 60   1703:      rts
5026      1704: ;
5026      1705: ;
5026      1706: LE_RAM_END:
5026      1707: ;
5026      1708: ;-----
5026      1709: ; HI-Speed sio handler
5026      1710: ;dissambled by Stephen J. Carden
5026      1711: ; 12/25/1995
5026      1712: ;-----
5026      1713: ;
5026      1714: S_L4034:
5026      1715: ;      .org   $E459
5026      1716: ;
5026      1717: S_SIOV:
5026 4c7f07 1718:      jmp   $77f      ; S_L077F
5029      1719: S_SETVBV:
5029 a900 1720:      lda   #0
502b 8d0f03 1721:      sta   CASFLG
502e ad0003 1722:      lda   DDEVIC
5031 c931 1723:      cmp   #$31      ; value for disk#1
5033 d01a 1724:      bne   S_LE482
5035 ac0103 1725:      ldy   DUNIT
5038 b96352 1726: w9b01:      lda   S_LE696,Y
503b 1008 1727:      bpl   S_LE478
503d a928 1728:      lda   #40      ;$28 this may be so
503f 996352 1729: w9b02:      sta   S_LE696,Y
5042 206c52 1730: w9b03:      jsr   S_LE69F
5045 ac0103 1731: S_LE478:      LDY   DUNIT
5048 be6352 1732: w9b04:      idx   S_LE696,Y
504b a90e 1733:      lda   #$0E
504d d004 1734: S_LE480:      BNE   S_LE486
504f a90e 1735: S_LE482:      LDA   #$0E
5051 a228 1736: S_LE484:      LDX   #$28
5053 8d1903 1737: S_LE486:      STA   TSTAT
5056 8e04d2 1738:      stx   AUDF3
5059 a900 1739:      lda   #0
505b 8d06d2 1740:      sta   AUDF4
505e 18   1741:      clc
505f ad0003 1742:      lda   DDEVIC
5062 6d0103 1743: S_LE495:      ADC   DUNIT
5065 69ff 1744:      adc   #$FF
5067 8d3a02 1745:      sta   CDEVIC
506a ad0203 1746:      lda   DCOMND
506d 8d3b02 1747:      sta   CCOMND
5070 ad0a03 1748:      lda   DAUX1
5073 8d3c02 1749:      sta   CAUX1

```

```

5076 ad0b03 1750:      lda  DAUX1+1
5079 8d3d02 1751:      sta  CAUX1+1
507c 78 1752: S_LE4AF: SEI
507d a902 1753:      lda  #2
507f 8dbd02 1754:      sta  DRETRY
5082 ad1903 1755: S_LE4B5: LDA  TSTAT
5085 8d9c02 1756:      sta  CRETRY
5088 a93a 1757: S_LE4BB: LDA  #low CDEVIC ;$3A
508a 8532 1758:      sta  BUFRLO
508c a902 1759:      lda  #high CDEVIC ;2
508e 8533 1760:      sta  BUFRLO+1
5090 a904 1761:      lda  #4
5092 8534 1762:      sta  BFENLO
5094 a900 1763:      lda  #0
5096 8535 1764:      sta  bfenlo+1
5098      1765: ;
5098      1766: ;
5098      1767: ;
5098      1768: ; Hummm I wonder what $34 stored into $d303 is doing
5098      1769: ;
5098 a934 1770:      lda  #$34
509a 8d03d3 1771:      sta  PBCTL
509d 20eb50 1772: w9b05: jsr  S_LE51E
50a0 9007 1773: S_LE4D3: BCC  S_LE4DC
50a2 ce9c02 1774: S_LE4D5: DEC  CRETRY
50a5 d0e1 1775:      bne  S_LE4BB
50a7 f01f 1776:      beq  S_LE4FB
50a9      1777: S_LE4DC:
50a9 20d650 1778: w9b06: JSR  S_LE509
50ac 2c0303 1779:      bit  DSTATS
50af 1005 1780:      bpl  S_LE4E9
50b1 20eb50 1781: w9b07: jsr  S_LE51E
50b4 b0ec 1782:      bcs  S_LE4D5
50b6      1783: S_LE4E9:
50b6 204452 1784: w9b08: JSR  S_LE677
50b9 207451 1785: w9b09: jsr  S_LE5A7
50bc b00a 1786:      bcs  S_LE4FB
50be 2c0303 1787:      bit  DSTATS
50c1 500a 1788:      BVC  S_LE500
50c3 203951 1789: w9b10: jsr  S_LE56C
50c6 9005 1790:      bcc  S_LE500
50c8 cebd02 1791: S_LE4FB: DEC  DRETRY
50cb d0b5 1792:      bne  S_LE4B5
50cd      1793: S_LE500:
50cd 205352 1794: w9b11: JSR  S_LE686
50d0 58 1795:      cli
50d1 a900 1796:      lda  #0
50d3 a430 1797:      ldy  $30
50d5 60 1798:      rts
50d6      1799: ;
50d6      1800: S_LE509:
50d6 ad0403 1801:      lda  DBUFLO
50d9 8532 1802:      sta  BUFRLO

```

```

50db ad0503 1803: S_LE50E:  LDA  DBUFLO+1
50de 8533 1804:          sta  BUFRLO+1
50e0 ad0803 1805:          lda  DBYTLO
50e3 8534 1806:          sta  BFENLO
50e5 ad0903 1807:          lda  DBYTLO+1
50e8 8535 1808:          sta  bfenlo+1
50ea 60 1809:          rts
50eb      1810: ;
50eb      1811: S_LE51E:
50eb a2ff 1812:          ldx  #$FF
50ed ca 1813: S_LE520:  DEX
50ee d0fd 1814:          bne  S_LE520
50f0 201d52 1815: w9b12:  jsr  S_LE650
50f3 a000 1816:          ldy  #0
50f5 b132 1817:          lda  (BUFRLO),Y
50f7 8531 1818:          sta  $31
50f9 8d0dd2 1819:          sta  SEROUT
50fc c8 1820:          iny
50fd 2c 1821:          dc.b  $2C
50fe e633 1822: S_LE531:  INC  BUFRLO+1
5100      1823: ;
5100 c635 1824:          dec  bfenlo+1
5102 300d 1825:          bmi  S_LE544
5104 b132 1826: S_LE537:  LDA  (BUFRLO),Y
5106 200652 1827: w9b13:  jsr  S_LE639
5109 20be51 1828: w9b14:  jsr  S_LE5F1
510c c8 1829:          iny
510d d0f5 1830:          bne  S_LE537
510f f0ed 1831:          beq  S_LE531
5111 c434 1832: S_LE544:  CPY  BFENLO
5113 f00c 1833:          beq  S_LE554
5115 b132 1834:          lda  (BUFRLO),Y
5117 200652 1835: w9b15:  jsr  S_LE639
511a 20be51 1836: w9b16:  jsr  S_LE5F1
511d c8 1837:          iny
511e 4c1151 1838: w9b17:  jmp  S_LE544
5121      1839: ;
5121 a531 1840: S_LE554:  LDA  $31
5123 200652 1841: w9b18:  jsr  S_LE639
5126 ad0ed2 1842: S_LE559:  LDA  IRQST
5129 2908 1843:          and  #8
512b d0f9 1844:          bne  S_LE559
512d a9c0 1845:          lda  #$C0
512f 8d0ed2 1846:          sta  IRQEN
5132 a200 1847:          ldx  #0
5134 a002 1848:          ldy  #2
5136 4c7451 1849: w9b19:  jmp  S_LE5A7
5139      1850: ;
5139      1851: S_LE56C:
5139 a900 1852:          lda  #0
513b 8531 1853:          sta  $31
513d a8 1854:          tay
513e 2c 1855:          dc.b  $2C

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```

513f e633 1856: S_LE572: INC BUFRLO+1
5141 c635 1857: S_LE574: DEC bfenlo+1
5143 300f 1858:      bmi  S_LE587
5145      1859: S_LE578:
5145 20c651 1860: w9b20: JSR  S_LE5F9
5148 b026 1861:      bcs  S_LE5A3
514a 9132 1862:      sta  (BUFRLO),Y
514c 20be51 1863: w9b21: jsr  S_LE5F1
514f c8 1864:      iny
5150 d0f3 1865:      bne  S_LE578
5152 f0eb 1866:      beq  S_LE572
5154 c434 1867: S_LE587: CPY  BFENLO
5156 f00d 1868:      beq  S_LE598
5158 20c651 1869: w9b22: jsr  S_LE5F9
515b b013 1870:      bcs  S_LE5A3
515d 9132 1871:      sta  (BUFRLO),Y
515f 20be51 1872: w9b23: jsr  S_LE5F1
5162 c8 1873:      iny
5163 d0ef 1874:      bne  S_LE587
5165      1875: S_LE598:
5165 20c651 1876: w9b24: JSR  S_LE5F9
5168 c531 1877:      cmp  $31
516a d002 1878:      bne  S_LE5A1
516c 18 1879:      clc
516d 60 1880:      rts
516e      1881: ;
516e a98f 1882: S_LE5A1: LDA  #143 ; $8F
5170 8530 1883: S_LE5A3: STA  $30
5172 38 1884:      sec
5173 60 1885:      rts
5174      1886: ;
5174      1887: S_LE5A7:
5174 20a451 1888: w9b25: jsr  S_LE5D7
5177 202052 1889: w9b26: jsr  S_LE653
517a a93c 1890: S_LE5AD: LDA  #60          ;$3C
517c 8d03d3 1891:      sta  PBCTL
517f 20c651 1892: w9b27: jsr  S_LE5F9
5182 b011 1893:      bcs  S_LE5C8
5184 c941 1894:      cmp  #'A'          ; $41
5186 f013 1895:      beq  S_LE5CE
5188 c943 1896:      cmp  #'C'          ; $43
518a f00f 1897:      beq  S_LE5CE
518c c945 1898:      cmp  #'E'          ; $45
518e f003 1899:      beq  S_LE5C6
5190 a98b 1900:      lda  #139          ; $8B
5192 2c 1901:      dc.b $2C
5193 a990 1902: S_LE5C6: LDA  #144          ; $90
5195 8530 1903: S_LE5C8: STA  $30
5197 c98b 1904:      cmp  #139          ; $8B
5199 38 1905:      sec
519a 60 1906:      rts
519b      1907: ;
519b a000 1908: S_LE5CE: LDY  #0

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```

519d a200 1909:      ldx  #0
519f 20a451 1910: w9b28:  jsr  S_LE5D7
51a2 18 1911:      clc
51a3 60 1912:      rts
51a4 1913: ;
51a4 1914: S_LE5D7:
51a4 a9cf 1915:      lda  # low $07CF
51a6 8d2602 1916:      sta  $0226
51a9 a907 1917:      lda  # high $07CF
51ab 8d2702 1918:      sta  $0226+1
51ae a900 1919:      lda  #0
51b0 8d1803 1920:      sta  STACKP
51b3 a901 1921:      lda  #1
51b5 8530 1922:      sta  $30
51b7 8e1902 1923: S_LE5EA:  STX  $0218+1
51ba 8c1802 1924:      sty  $0218
51bd 60 1925:      rts
51be 1926: ;
51be 1927: S_LE5F1:
51be 18 1928:      clc
51bf 6531 1929:      adc  $31
51c1 6900 1930:      adc  #0
51c3 8531 1931:      sta  $31
51c5 60 1932:      rts
51c6 1933: ;
51c6 2c1803 1934: S_LE5F9:  BIT  STACKP
51c9 3037 1935:      bmi  S_LE635
51cb a920 1936:      lda  #$20
51cd 2c0ed2 1937:      bit  IRQST
51d0 101d 1938:      bpl  S_LE622
51d2 d0f2 1939: S_LE605:  BNE  S_LE5F9
51d4 a9df 1940: S_LE607:  LDA  #$DF
51d6 8d0ed2 1941:      sta  IRQEN
51d9 a9f8 1942:      lda  #$F8
51db 8d0ed2 1943:      sta  IRQEN
51de ad0fd2 1944:      lda  SKSTAT
51e1 8d0ad2 1945:      sta  SKRES
51e4 1016 1946:      bpl  S_LE62F          ; 420A
51e6 2920 1947:      and  #$20
51e8 f015 1948:      beq  S_LE632          ; 420D
51ea ad0dd2 1949:      lda  SERIN
51ed 18 1950:      clc
51ee 60 1951:      rts
51ef 1952: ;
51ef a95f 1953: S_LE622:  LDA  #$5F
51f1 8d0ed2 1954:      sta  IRQEN
51f4 a9f8 1955:      lda  #$F8
51f6 8d0ed2 1956:      sta  IRQEN
51f9 a980 1957:      lda  #128             ;$80 user b
51fb 2c 1958:      dc.b  $2C
51fc a98c 1959: S_LE62F:  LDA  #140             ; $8c seria
51fe 2c 1960:      dc.b  $2C
51ff a98e 1961: S_LE632:  LDA  #142             ; $8e sio s

```

```

5201 2c 1962:          dc.b  $2C
5202 a98a 1963: S_LE635: LDA  #138          ; $8a drive
5204 38 1964:          sec
5205 60 1965:          rts
5206     1966: ;
5206     1967: S_LE639:
5206 48 1968:          pha
5207 ad0ed2 1969: S_LE63A: LDA  IRQST
520a 2910 1970:          and  #$10
520c d0f9 1971:          bne  S_LE63A
520e a9ef 1972:          lda  #$EF
5210 8d0ed2 1973: S_LE643: STA  IRQEN
5213 a9f8 1974:          lda  #$F8
5215 8d0ed2 1975:          sta  IRQEN
5218 68 1976:          pla
5219 8d0dd2 1977:          sta  SEROUT
521c 60 1978:          rts
521d     1979: ;
521d a923 1980: S_LE650: LDA  #$23
521f     1981: ;
521f 2c 1982:          dc.b  $2C
5220 a913 1983: S_LE653: LDA  #$13
5222     1984: ;
5222 8d0fd2 1985:          sta  SKCTL
5225 8d0ad2 1986:          sta  SKRES
5228 a928 1987:          lda  #$28
522a 8d08d2 1988:          sta  AUDCTL
522d a541 1989:          lda  SOUND
522f f003 1990:          beq  S_LE667
5231 a9a8 1991:          lda  #168 ;$A8
5233 2c 1992:          dc.b  $2C
5234 a9a0 1993: S_LE667: LDA  #160 ;$A0
5236     1994: ;
5236 8d07d2 1995:          sta  AUDC4
5239 a900 1996: S_LE66C: LDA  #0
523b 8d0ed2 1997:          sta  IRQEN
523e a9f8 1998:          lda  #$F8
5240 8d0ed2 1999:          sta  IRQEN
5243 60 2000:          rts
5244     2001: ;
5244     2002: S_LE677:
5244 ad0603 2003:          lda  DTIMLO
5247 6a 2004:          ror
5248 6a 2005:          ror
5249 a8 2006:          tay
524a 293f 2007:          and  #$3F ; I have no Idea
524c aa 2008:          tax
524d 98 2009:          tya
524e 6a 2010:          ror
524f 29c0 2011:          and  #$C0 ; I have no Idea
5251 a8 2012:          tay
5252 60 2013:          rts
5253     2014: ;

```

```

5253      2015: S_LE686:
5253 a510 2016:      lda  POKMSK
5255 8d0ed2 2017:      sta  IRQEN
5258 a206 2018:      ldx  #6
525a a900 2019:      lda  #0
525c 9d01d2 2020: S_LE68F:  STA  AUDC1,X
525f ca 2021:      dex
5260 ca 2022:      dex
5261 10f9 2023:      bpl  S_LE68F
5263 60 2024: S_LE696:  RTS
5264      2025: ;
5264      2026: S_LE697:
5264      2027: ;
5264      2028: ;This needs an extra byte to status all 9 Drives
5264 000000 2029:      dc.b  0,0,0,0
5268 000000 2030:      dc.b  0,0,0,0
526c      2031: ;      dc.b  0          ; 1
526c      2032: ;
526c a208 2033: S_LE69F:  LDX  # low S_LE69F-S_LE697
526e bd0203 2034: S_LE6A1:  LDA  DCOMND,X
5271 48 2035:      pha
5272 ca 2036:      dex
5273 10f9 2037:      bpl  S_LE6A1
5275      2038: ;
5275      2039: ; return high speed command in USDoubler Drives
5275      2040: ; 1 byte return UsDoubler = 10
5275      2041: ;
5275      2042: ;
5275      2043: ;
5275 a93f 2044:      lda  #'?'
5277 8d0203 2045:      sta  DCOMND
527a a201 2046:      ldx  #1
527c 8e0403 2047:      stx  DBUFLO
527f 8e0803 2048:      stx  DBYTLO
5282 8e0603 2049:      stx  DTIMLO
5285 ca 2050:      dex
5286 8e0503 2051:      stx  DBUFLO+1
5289 8e0903 2052:      stx  DBYTLO+1
528c a940 2053:      lda  #$40
528e 8d0303 2054:      sta  DSTATS
5291 a904 2055:      lda  #4
5293 8d0a03 2056:      sta  DAUX1
5296 205150 2057: w9b29:  jsr  S_LE484
5299 3008 2058:      bmi  S_LE6D6
529b a501 2059:      lda  NGFLAG
529d ac0103 2060:      ldy  DUNIT
52a0 996352 2061: w9b30:  sta  S_LE697-1,Y
52a3 a200 2062: S_LE6D6:  LDX  #0
52a5 68 2063: S_LE6D8:  PLA
52a6 9d0203 2064:      sta  DCOMND,X
52a9 e8 2065:      inx
52aa e009 2066:      cpx  # low S_LE69F-S_LE697+1
52ac d0f7 2067:      bne  S_LE6D8

```



```
52ae 60 2068:      rts
52af      2069: ;
52af      2070: S_LE6E2:
52af a208 2071:      ldx  # low S_LE69F-S_LE697
52b1 a9ff 2072:      lda  #$FF
52b3      2073: S_LE6E6:
52b3 9d6352 2074: w9b31:  STA  S_LE696,X
52b6 ca 2075:      dex
52b7 d0fa 2076:      bne  S_LE6E6
52b9 60 2077:      rts
52ba      2078: ;
52ba      2079: SE_RAM_END:  ds.b  0
52ba      2080: ;
52ba      2081: win_end:   ds.b  0
52ba      2082: ;
```

End assembly: no errors