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10 0000 ;*****
20 0000 ;
30 0000 ;   COMBINED KEYBOARD/PRINTER HANDLER
40 0000 ;
50 0000 ;           VERSION 4
60 0000 ;
70 0000 ;*****
80 0000   INTVEC=$219
90 0000 ;
100 0000 ; DEFINE THE VIA ADDRESSES
110 0000   DDR=           $E843
120 0000   PCR=           $E84C
130 0000   PIAA=          $E84F
140 0000   TAPES=         $E810
150 0000 ;
160 0000 ;
170 0000   CB2H=          $E0           CB2 HIGH MASK (OR IT IN TO PCR)
180 0000   CB2L=          $CF           CB2 LOW MASK (AND IT IN TO PCR)
190 0000   CB2RGR=        $CC           CB2 LOW AND GRAPHICS MODE
200 0000   CB2RUL=        $CE           CB2 LOW AND UPPER/LOWER CASE MODE
210 0000 ;
220 0000   ACTION=        7           ACTION PORT
230 0000   ALLRST=        1           RESET DEVICES
240 0000   KBLTCH=        2           RESET KB
250 0000   BEEPLO=        4           BELL 1
260 0000   BEEPHI=        3           BELL 2
270 0000 ;
280 0000   MISC=           15          MISCELLANEOUS FLAGS
290 0000   KBERK=          2           BREAK HIT
300 0000   KBCMD=          4           CMD HIT
310 0000 ;
320 0000   U1DAT=          1
330 0000   U1CTL=          17
340 0000   U2DAT=          2
350 0000   U2CTL=          18
360 0000 ;
370 0000   STATUS=         8
380 0000   RCV1=           4           IN STATUS
390 0000   RCV2=           8           SECOND RECEIVER STATUS
400 0000   KBHIT=          $10        THE KEY BOARD WAS STRUCK
410 0000   BOXOFF=        $20        BOX NOT POWERED
420 0000 ;
430 0000   KBDATA=         11         KEYBOARD CODES
440 0000 ;
450 905A   *=PRTENB
460 905A 4C03A5   JMP PSTART
470 A400   *=PRTRTN
480 A400 ;
490 A400 4C0BA4   JMP CSETUP
500 A403 4C03A5   JMP PSTART
510 A406 4C1DA5   JMP USRPRT
520 A409 A4A5     .WORD END
530 A40B ;
540 A40B ;   START UP KEYBOARD
550 A40B ;
560 A40B A9FF   CSETUP LDA #$FF ;DDR TO OUTWARDS
570 A40D 8D43E8   STA DDR
580 A410 A201     LDX #ALLRST
590 A412 A907     LDA #ACTION
600 A414 204BA4   JSR OUT
610 A417 A908     LDA #STATUS
620 A419 2067A4   JSR IN   SEE IF BOX IS ON

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630 A41C 2920          AND #BOXOFF
640 A41E D020          BNE CSETX    NO
650 A420 A202          LDX #KBLTCH  FLUSH KB DATA
660 A422 A907          LDA #ACTION
670 A424 204BA4        JSR OUT
680 A427 08            SETINT PHP
690 A428 78            SEI
700 A429 AD1902        LDA INTVEC  STACK OLD HANDLER
710 A42C 8D9FA5        STA OLDHND
720 A42F AD1A02        LDA INTVEC+1
730 A432 8DA0A5        STA OLDHND+1  FOR EXITING
740 A435 A98F          LDA #INTHAN*256/256
750 A437 A2A4          LDX #INTHAN/256  POINT TO MY HANDLER
760 A439 8D1902        STA INTVEC
770 A43C 8E1A02        STX INTVEC+1
780 A43F 28            PLP
790 A440 00            CSETX BRK
800 A441                ;
810 A441                ;
820 A441 A912          KWAIT LDA      #U2CTL
830 A443 2067A4        JSR      IN
840 A446 2901          AND      #1      ;RDY?
850 A448 F0F7          BEQ      KWAIT
860 A44A 60            RTS
870 A44B                ;
880 A44B                ;      OUTPUT DATA IN X REG ON PORT IN A-REG
890 A44B                ;
900 A44B                ;
910 A44B                ;      A,X,Y PRESERVED
920 A44B                ;
930 A44B 08            OUT   PHP      SAVE STATUS
940 A44C 78            SEI      DISABLE INTERRUPTS
950 A44D 48            PHA      ;SAVE A
960 A44E 8D4FE8        STA      PIAA    ;PORT NUMBER
970 A451 AD4CE8        LDA      PCR     ;RAISE CB2
980 A454 09E0          ORA      #CB2H
990 A456 8D4CE8        STA      PCR
1000 A459 8E4FE8       STX      PIAA    ;DATA OUT NOW
1010 A45C AD4CE8       LDA      PCR     ;LOWER CB2
1020 A45F 29CF         AND      #CB2L
1030 A461 8D4CE8       STA      PCR
1040 A464 68           PLA      ;RESTORE A
1050 A465 28           PLP      RESTORE OLD STATE
1060 A466 60           RTS
1070 A467                ;
1080 A467                ;
1090 A467                ;      INPUT DATA FROM PORT IN A-REG
1100 A467                ;
1110 A467                ;
1120 A467                ;      RETURNED IN A
1130 A467                ;      DESTROYS X
1140 A467                ;      Y PRESERVED
1150 A467 08            IN    PHP      SAVE STATUS
1160 A468 78            SEI
1170 A469 18            CLC
1180 A46A 6920          ADC      #$20    ;READ THIS PORT
1190 A46C 8D4FE8        STA      PIAA    ;PORT NUMBER
1200 A46F AD4CE8        LDA      PCR     ;RAISE CB2
1210 A472 09E0          ORA      #CB2H
1220 A474 8D4CE8        STA      PCR
1230 A477 A200          LDX      #0      ;SET DDR TO IN
1240 A479 8E43E8       STX      DDR
1250 A47C AE4FE8        LDX      PIAA    ;READ THE DATA
1260 A47F AD4CE8        LDA      PCR     ;LOWER CB2
1270 A482 29CF         AND      #CB2L
1280 A484 8D4CE8        STA      PCR

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1290 A487 A9FF          LDA      #$$FF ;SET DDR TO OUT
1300 A489 8D43E8      STA      DDR
1310 A48C 8A          TXA
1320 A48D 28          PLP      RESTORE STATUS
1330 A48E 60          RTS
1340 A48F
;
1350 A48F          ; *** INTERRUPT HANDLER ***          WILL SHUT
1360 A48F          ; ITSELF OFF IF EITHER TAPE SWITCH IS DOWN
1370 A48F
;
1380 A48F AD10E8      INTHAN LDA TAPES
1390 A492 2930          AND # $30      CHECK BOTH
1400 A494 C930          CMP # $30
1410 A496 F00F          BEQ INTOK
1420 A498 AD9FA5      LDA OLDEND    ONE IS DOWN
1430 A49B AEA0A5      LDX OLDEND+1 RESTORE OLD
1440 A49E 8D1902      STA INTVEC    HANDLER
1450 A4A1 8E1A02      STX INTVEC+1 AND EXIT TO HIM
1460 A4A4 6C1902      JMP (INTVEC)
1470 A4A7 A908          INTOK  LDA #STATUS
1480 A4A9 2067A4      JSR IN
1490 A4AC 2910          AND #KBHIT    KEYBOARD HIT?
1500 A4AE F050          BEQ INTXIT    NO
1510 A4B0 A90B          LDA #KBDATA   READ THE KEY
1520 A4B2 2067A4      JSR IN
1530 A4B5 297F          AND # $7F     MASK EXTRA BIT
1540 A4B7 C908          CMP #8        CHANGE BACKSPACE
1550 A4B9 D004          BNE INT0     TO PET CURSOR LEFT
1560 A4BB A99D          LDA #157
1570 A4BD D01C          BNE KEYOK
1580 A4BF C941          INT0  CMP # $41
1590 A4C1 9018          BCC KEYOK    BELOW 41
1600 A4C3 C95B          CMP # $5B
1610 A4C5 B004          BCS INT1
1620 A4C7 0980          ORA # $80     MAKE GRAPHIC
1630 A4C9 D010          BNE KEYOK
1640 A4CB C960          INT1  CMP # $60
1650 A4CD 900C          BCC KEYOK    LEAVE ALONE
1660 A4CF F004          BEQ INT2
1670 A4D1 C97B          CMP # $7B
1680 A4D3 9004          BCC INT3
1690 A4D5 49A0          INT2  EOR # $A0    MAKE GRAPHIC
1700 A4D7 D002          BNE KEYOK
1710 A4D9 4920          INT3  EOR # $20    MAKE UPPERCASE
1720 A4DB A8          KEYOK TAY          SAVE CHAR
1730 A4DC A90F          LDA #MISC     CHK RPT KEY
1740 A4DE 2067A4      JSR IN
1750 A4E1 2904          AND #KBCMD
1760 A4E3 08          PHP          SAVE STAUS
1770 A4E4 98          TYA          CHAR BACK
1780 A4E5 28          PLP
1790 A4E6 F002          BEQ KEYDN
1800 A4E8 0980          ORA # $80     MAKE GRAPHIC
1810 A4EA AE0D02      KEYDN LDX $20D     # CHARS IN BUFFER
1820 A4ED 9D0F02      STA $20F,X   SAVE THIS ONE
1830 A4F0 E8          INX
1840 A4F1 E00A          CPX #10      AT END?
1850 A4F3 D001          BNE KEYPT
1860 A4F5 CA          DEX          YES
1870 A4F6 8E0D02      KEYPT STX $20D     RESTORE COUNT
1880 A4F9 A202          LDX #KBLTCH
1890 A4FB A907          LDA #ACTION   RESET FLAG
1900 A4FD 204BA4      JSR OUT
1910 A500 6C9FA5      INTXIT JMP (OLDEND) BACK TO PREVIOUS HANDLER
1920 A503
;
1930 A503          ; PRINT CHAR
1940 A503
;

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1950 A503 ; VERSION 3.0
1960 A503 ;
1970 A503 BSTSTP =$F32A STOP KEY REPORT
1980 A503 PETPRT =$FFD2
1990 A503 ;
2000 A503 ; TURN ON PRINTER
2010 A503 ;
2020 A503 2025A5 PSTART JSR INIT
2030 A506 AD4C90 LDA PRCHAR+1 SAVE OLD PRCHAR
2040 A509 8DA1A5 STA OLDPR
2050 A50C AD4D90 LDA PRCHAR+2
2060 A50F 8DA2A5 STA OLDPR+1
2070 A512 A96B LDA #PRTCH*256/256 PUT NEW PRCHAR
2080 A514 8D4C90 STA PRCHAR+1
2090 A517 A9A5 LDA #PRTCH/256
2100 A519 8D4D90 STA PRCHAR+2
2110 A51C 60 RTS
2120 A51D ;
2130 A51D 20A7D0 USRPRT JSR $D0A7 CONVERT TO INT
2140 A520 A5B4 LDA $B4 GET LSB
2150 A522 4C6BA5 JMP PRTCH PRINT IT
2160 A525 ;
2170 A525 D8 INIT CLD
2180 A526 A9FF LDA #$FF ;DDR TO OUTWARDS
2190 A528 8D43E8 STA DDR
2200 A52B A201 LDX #ALLRST
2210 A52D A907 LDA #ACTION
2220 A52F 204BA4 JSR OUT
2230 A532 A912 LDA #U2CTL
2240 A534 A27A LDX #$7A ;300 BAUD ASCII
2250 A536 204BA4 JSR OUT
2260 A539 A207 LDX #7
2270 A53B 204BA4 JSR OUT ;ENABLE PRINTER
2280 A53E A902 LDA #U2DAT ;FLUSH RECEIVER
2290 A540 2067A4 JSR IN
2300 A543 ;
2310 A543 202AF3 PWAIT JSR BSTSTP
2320 A546 D017 BNE PPWT IF STOP KEY,
2330 A548 ADA1A5 LDA OLDPR RESTORE OLD PRCHAR
2340 A54B 8D4C90 STA PRCHAR+1
2350 A54E ADA2A5 LDA OLDPR+1
2360 A551 8D4D90 STA PRCHAR+2
2370 A554 A912 LDA #U2CTL
2380 A556 A205 LDX #5 DROP DTR
2390 A558 204BA4 JSR OUT
2400 A55B 00 BRK AND STOP
2410 A55C ;
2420 A55C 4C03A5 JMP PSTART
2430 A55F A912 PPWT LDA #U2CTL
2440 A561 2067A4 JSR IN
2450 A564 2981 AND #$81 ;RDY?
2460 A566 C981 CMP #$81 ;RDY?
2470 A568 D0D9 BNE PWAIT
2480 A56A 60 RTS
2490 A56B ;
2500 A56B ; PRINT TO SCREEN AND PRINTER
2510 A56B ;
2520 A56B 20D2FF PRTCH JSR PETPRT TO TV SCREEN
2530 A56E 8DA3A5 STA SAVEA
2540 A571 8A TXA
2550 A572 48 PHA SAVE X
2560 A573 98 TYA
2570 A574 48 PHA ;SAVE Y
2580 A575 2043A5 JSR PWAIT ; IDLE
2590 A578 ADA3A5 LDA SAVEA
2600 A57B C9C1 CMP #193 SMALL A

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2610 A57D 9006      BCC NOCASE
2620 A57F C9DB      CMP #219    SMALL Z+1
2630 A581 B002      BCS NOCASE
2640 A583 4920      EOR #20
2650 A585 297F      NOCASE AND #7F REMOVE LEFT BIT
2660 A587 AA        TAX
2670 A588 E020      CPX #20    IS LEGAL?
2680 A58A B006      BCS DOPRT
2690 A58C E00A      CPX #10    SUPPRESS LF
2700 A58E F007      BEQ PXIT2 DO ANY OTHER
2710 A590 A20A      LDX #10
2720 A592 A902      DOPRT LDA    #U2DAT
2730 A594 204BA4    JSR      OUT
2740 A597 68        PXIT2 PLA
2750 A598 A8        TAY      RESTORE ALL REGS
2760 A599 68        PLA
2770 A59A AA        TAX
2780 A59B ADA3A5    LDA SAVEA
2790 A59E 60        RTS
2800 A59F          ;
2810 A59F          ;
2820 A5A1          OLDHND **+2      PREVIOUS INTERRUPT HANDLER LOCATION
2830 A5A3          OLDPR  **+2      PREVIOUS PRCHAR ROUTINE
2840 A5A4          SAVEA  **+1
2850 A5A4          END    .END

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