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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 KBRK= 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= $20 BOX NOT POWERED
420 0000 ;
430 0000 KBDATA= 11 KEYBOARD CODES
440 0000 ;
450 905A *=PRTENB
460 905A 4C03A5 JMP PSTART
470 A400 *=PRTRTN
480 A400 ;
490 A400 4C0BA4 JMP CSETP
500 A403 4C03A5 JMP PSTART
510 A406 4C1DA5 JMP USRPRT
520 A409 A4A5 .WORD END
530 A40B ;
540 A40B ; START UP KEYBOARD
550 A40B ;
560 A40B A9FF CSETP LDA #$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

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 OLHDND	ONE IS DOWN
1430	A49B	AEA0A5		LDX OLHDND+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 (OLHDND)	BACK TO PREVIOUS HANDLER
1920	A503	;			
1930	A503	;		PRINT CHAR	
1940	A503	;			

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 OLDPY
 2050 A50C AD4D90 LDA PRCHAR+2
 2060 A50F 8DA2A5 STA OLDPY+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 OLDPY RESTORE OLD PRCHAR
 2340 A54B 8D4C90 STA PRCHAR+1
 2350 A54E ADA2A5 LDA OLDPY+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

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