

Base USB HID Driver#

This driver includes the basic functions to access an USB HID Device. This Driver will include the device dependent code.

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01000          .LI OFF
01010 *****
01020 ** 6502 USB DEVELOPMENT **
01030 ** (C) 2004 BY ABBUC **
01040 ** REGIONALGRUPPE FFM **
01050 ** USB HID BASE DRIVER **
01060 ** FOR USB SL811HS **
01070 ** VERSION 2.0 20041213 **
01080 ** LICENSED UNDER THE **
01090 ** GNU PUBLIC LICENSE **
01100 ** (GPL) VERS. 2 OR LATER **
01110 ** **
01120 *****
01130 ;
01140          .OR $7000
01150          .OF "D:RUMBPAD2.COM" <--- change this name
01160 ;
01170 ; SL811 MEMORY ADDRESSES
01180 ; CHANGE ACCORDING TO YOUR
01190 ; CONFIGURATION
01200 USBSEL      = $D500
01210 USBDTA      = $D501
01220 ;
01230 ; USB REGISTER SL811
01240 ;
01250 CTL          = $00 ; USBA HOST CTL
01260 BUFADR       = $01 ; BUFFER ADDRESS
01270 BUFLLEN     = $02 ; BUFFER LEN
01280 PIDEP       = $03 ; HOST PID
01290 PKSTAT      = $03 ; PAKET STATUS
01300 FNADDR      = $04 ; USB ADDR (WO)
01310 MCNTRL      = $05 ; MAIN CONTROL
01320 CDTASET     = $0E
01330 SOFCNT      = $0F ; CNTRL 2 REG
01340 SOFLOW      = $0E ; SOF LOW
01350 INTSTAT     = $0D ; IRQ STATUS
01360 ;
01370 ; USB CONSTANTS
01380 ;
01390 ; INTENA AND INTSTAT MASKS
01400 EP0DONE     = $01
01410 EP1DONE     = $02
01420 EP2DONE     = $04
01430 EP3DONE     = $08
01440 DMADONE     = $10
01450 SOFRECVCV   = $20
01460 USBRSET     = $40
01470 DMASTAT     = $80
01480 ;
01490 ; ENDPOINT CONTROL REG
01500 EPC0        = $00 ; ENDPOINT 0
01510 EPC1        = $10 ; ENDPOINT 1
01520 EPC2        = $20 ; ENDPOINT 2
01530 EPC3        = $30 ; ENDPOINT 3
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01540 ;
01550 ; ENDPOINT REGISTER OFFSET
01560 ;
01570 EPC          = $00 ; CONTROL
01580 EPBA        = $01 ; BASE ADDRESS
01590 EPBL        = $02 ; BASE LENGTH
01600 EPPS        = $03 ; PACKET STATUS
01610 EPTC        = $04 ; TRANSFERCOUNT
01620 ;
01630 ; PID VALUES
01640 ;
01650 SOFPID      = $05 ; SOF PID
01660 INPID      = $90 ; PACKET ID
01670 SETPID      = $D0 ; SET ADDRESS REQ
01680 ;
01690 ; SET ADDRESS PACKET
01700 ;
01710 SETADDR    .HX 0005010000000000
01720 ;
01730 ; SET CONFIG PACKET
01740 ;
01750 SETCONF    .HX 0009010000000000
01760 ;
01770 SETVBV     = $E45C
01780 XITVBV     = $E462
01790 VCOUNT     = $D40B
01800 CONSOL     = $D01F
01810 ;
01820 -----
01830 USBRESET
01840             LDA #$AE ; SET SOF
01850             LDX #SOFcnt ; HIGH COUNT
01860             JSR REGSTORE
01870 ;
01880             LDA #$08 ; RESET USB
01890             LDX #MCNTRL ; FULLSPEED
01900             JSR REGSTORE
01910 ;
01920             LDA #$10
01930             JSR PAUSE
01940 ;
01950             LDA #00
01960             LDX #MCNTRL
01970             JMP REGSTORE
01980 ;
02000 -----
02010 QUERYUSBRESET
02020 ; OUT: A=0 NO USB RESET
02030 ; A!=0 USBRESET
02040 ;
02050             LDX #INTSTAT
02060             JSR REGFETCH
02070             AND #USBRSET
02080             RTS
02090 -----
02100 CLEARIRQ
02110             LDA #$FF
02120             LDX #INTSTAT
02130             JMP REGSTORE

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02140 -----
02150 SPEED
02160 ; OUT: A=0 LOW SPEED DEVICE
02170 ;     A!=0 HIGH SPEED DEVICE
02180 ;         OR ERROR
02190 ;
02200         JSR USBRESET
02210         JSR CLEARIRQ
02220         LDA #10
02230         JSR PAUSE
02240         JSR QUERYUSBRESET
02250         BEQ .1 ; NO RESET
02260         JSR CLEARIRQ
02270         LDA #$FF
02280         RTS
02290 ;
02300 .1         LDX #INTSTAT
02310         JSR REGFETCH
02320         AND #DMASTAT
02330         BNE .2
02340 ;
02350 ; LOW SPEED
02360 ;
02370         LDA #$AE
02380         LDX #SOFcnt
02390         JSR REGSTORE
02400 ;
02410         LDA #$E0
02420         LDX #CDTASET
02430         JSR REGSTORE
02440 ;
02450         LDA #$05
02460         LDX #MCNTRL
02470         JSR REGSTORE
02480 ;
02490         JSR SETUPUSB
02500         LDA #$00
02510 ;
02520 ; FULL SPEED OR ERROR
02530 ;
02540 .2
02550         RTS
02560 -----
02570 SETUPUSB
02580         LDA #$50
02590         LDX #EPC0+EPPS
02600         JSR REGSTORE
02610 ;
02620         LDA #$00
02630         LDX #EPC0+EPTC
02640         JSR REGSTORE
02650 ;
02660         LDA #$01
02670         LDX #EPC0
02680         JSR REGSTORE
02690 ;
02700         LDA #25
02710         JSR PAUSE
02720 ;

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02730                JMP CLEARIRQ
02750 -----
02760 INITDEVICE
02770                LDA #08
02780                LDX #MCNTRL
02790                JSR REGSTORE
02800 ;
02810                LDA #14
02820                JSR PAUSE
02830 ;
02840                LDA #21
02850                LDX #MCNTRL
02860                JSR REGSTORE
02870 ;
02880                LDA #10      ; $10 ADDR
02890                LDX #BUFADR ; DATABUF
02900                JSR REGSTORE
02910 ;
02920                LDA #8       ; 8 BYTE
02930                LDX #BUFLN  ; DATABUF
02940                JSR REGSTORE
02950 ;
02960                LDA #E0      ; 1MS EOP
02970                LDX #SOFLOW
02980                JSR REGSTORE
02990 ;
03000                LDA #EE
03010                LDX #SOFcnt
03020                JSR REGSTORE
03030 ;
03040 ; SET BUFFER FOR SETUP-ADDRESS
03050 ; REQUEST = 1
03060 ;
03070                LDY #8
03080 .1            TYA
03090                CLC
03100                ADC #F      ; BUF ADDR
03110                TAX
03120                LDA SETADDR-1,Y
03130                JSR REGSTORE
03140                DEY
03150                BNE .1
03160 ;
03170                LDA #0       ; WE USE
03180                LDX #FNADDR ; ADDR 0
03190                JSR REGSTORE
03200 ;
03210                LDA #SETPID
03220                LDX #PIDEP
03230                JSR REGSTORE
03240 ;
03250 .2            LDA #07
03260                JSR PROCESS
03270                AND #04
03280                BNE .2
03290 ;
03300                LDA #20
03310                JSR PAUSE
03320 ;

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03330          LDA #INPID
03340          LDX #PIDEP
03350          JSR REGSTORE
03360 ;
03370          LDA #03
03380          JSR PROCESS
03390 ;
03400 ; SELECT CONFIGURATION 1
03410 ;
03420          LDY #8
03430 .3       TYA
03440          CLC
03450          ADC #F
03460          TAX
03470          LDA SETCONF-1,Y
03480          JSR REGSTORE
03490          DEY
03500          BNE .3
03510 ;
03520          LDA #01
03530          LDX #FNADDR ; NEW ADDR
03540          JSR REGSTORE
03550 ;
03560          LDA #SETPID
03570          LDX #PIDEP
03580          JSR REGSTORE
03590 ;
03600 .4       LDA #07
03610          JSR PROCESS
03620          AND #04
03630 ;
03640          BNE .4
03650 ;
03660          LDA #INPID
03670          LDX #PIDEP
03680          JSR REGSTORE
03690 ;
03700          LDA #03
03710          JSR PROCESS
03720 ;
03730          LDA #INPID
03740          ORA #01
03750          LDX #PIDEP
03760          JMP REGSTORE
03770 ;
03790 -----
03800 ; PRINT INLINE STRING
03810 ; END MARKER '@'
03820 ;
03830 PRINT  PLA          get Return address
03840          STA $D0      from Stack
03850          PLA          and store
03860          STA $D1      as pointer
03870 ;
03880 INCP   INC $D0      increase
03890          BNE .1       pointer
03900          INC $D1
03910 .1     LDX #0        read Char from RAM
03920          LDA ($D0,X)

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03930          CMP #'@      End?
03940          BEQ ENDP      yes==>
03950          JSR PUTCHAR  Print Char
03960          JMP INCP     back to loop
03970 ;
03980 ENDP      LDA $D1      store pointer
03990          PHA          as new
04000          LDA $D0      return address
04010          PHA          on stack
04020          RTS          continue pgm
04030 ;          after text
04040 -----
04050 PUTCHAR  TAX          Print char
04060          LDA $E407     with OS
04070          PHA          Routine
04080          LDA $E406
04090          PHA
04100          TXA
04110          RTS          JUMP
04120 -----
04130 CR          LDA #$9B
04140          JMP PUTCHAR
04150 -----
04160 WAITDEVICE
04170          JSR PRINT
04180          .HX 9B
04190          .AS "ATARI USB HID DRIVER"
04200          .HX 9B
04210          .AS "Version 2.0 / GNU License"
04220          .HX 9B
04230          .AS "(c) 2004 ABBUC e.V."
04240          .HX 9B
04250          .AS "H. Reminder, T. Grasel, C. Strotmann"
04260          .HX 9B9B40
04270          JSR PRINTDEVICE
04280          JSR CR
04290          JSR PRINTVERSION
04300          JSR CR
04310          JSR PRINTCOPY
04320          JSR CR
04330          JSR CR
04350          JSR PRINT
04360          .AS "WAIT FOR DEVICE, [START] TO SKIP..."
04370          .HX 9B40
04380 .1          JSR SPEED
04390          BEQ .2
04400 ; QUERY CONSOL KEYS
04410          LDA CONSOL
04420          AND #1 ; START KEY
04430          BEQ .3 ; SKIP USB
04440          BNE .1
04450 ;
04460 .2          JSR PRINT
04470          .AS "LOW SPEED DEVICE DETECTED!"
04480          .HX 9B40
04490 ;
04500          JSR INITDEVICE
04510          JSR PRINT
04520          .AS "JOYSTICK INITIALIZED."

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04530          .HX 9B40
04540          LDX /VBI
04550          LDY #VBI
04560          LDA #7
04570          JSR SETVBV
04580          RTS
04590 ;
04600 .3        JSR PRINT
04610          .AS "USB detection skipped,"
04620          .HX 9B
04630          .AS "no USB Driver installed!"
04640          .HX 9B40
04650          RTS
04660 -----
04670 RESPART  .OR $600
04680 -----
04690 REGFETCH
04700 ; IN:   X=USB REGISTER
04710 ; OUT:  A=USB DATA
04720          STX USBSEL
04730          LDA USBDTA
04740          RTS
04750 -----
04760 REGSTORE
04770 ; IN:   A=USB DATA
04780 ;      X=USB REGISTER
04790          STX USBSEL
04800          STA USBDTA
04810          RTS
04820 -----
04830 PAUSE
04840 ; IN:   A=NUMBER OF 1/50 SEC
04850          TAX
04860 .1      LDA VCOUNT
04870          BNE .1
04880          DEX
04890          BNE .1
04900          RTS
04910 -----
04920 PROCESS
04930 ; IN:   A=USB COMMAND
04940 ; OUT:  A=RETURNCODE
04950          PHA
04960          LDA #01
04970          LDX #INTSTAT
04980          JSR REGSTORE
04990 ;
05000          PLA
05010          LDX #CTL
05020          JSR REGSTORE
05030 ;
05040 .1      LDX #INTSTAT
05050          JSR REGFETCH
05060          AND #$01
05070          BEQ .1
05080 ;
05090          LDX #PKSTAT
05100          JMP REGFETCH
05120 -----

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```
05130 DEVICE      .IN "D:RUMBPAD2.SRC" <--- change this include for device dependent cod
05140 -----
05150             .OR $2E0
05160             .DA WAITDEVICE
05170 -----
```