```
000364  ;       Parallel Printer Driver -- Read
000365  ;
000366  ;---------------------------------------------------------------------
000367
000368  LP_READ         .EQU        *
000369                  BIT         OPENFLG                 ;Printer open ?
000370                  BMI         $010                    ;Yes
000371                  JMP         NOTOPEN                 ;No, return error
000372
000373  $010            LDA         #XBADOP
000374                  JSR         SYSERR
000375                  .PAGE
000376  ;---------------------------------------------------------------------
000377  ;
000378  ;       Parallel Printer Driver -- Write / Producer
000379  ;
000380  ;---------------------------------------------------------------------
000381
000382  LP_WRITE        .EQU        *
000383                  BIT         OPENFLG                 ;Printer open ?
000384                  BMI         $010                    ;Yes
000385                  JMP         NOTOPEN                 ;No, return error
000386  $010            LDA         REQCNT                  ;One's Complement of REQCNT
000387                  EOR         #0FF                    ;  to implement main loop:
000388                  STA         REQCNT                  ;  While (RC:=RC+1)<>0 Do ...
000389                  LDA         REQCNT+1
000390                  EOR         #0FF
000391                  STA         REQCNT+1
000392
000393  $020            INC         REQCNT                  ;Increment byte count
000394                  BNE         $030
000395                  INC         REQCNT+1
000396                  BEQ         $090                    ;All done
000397  $030            LDY         #0
000398                  LDA         (BUFFER),Y              ;Get character
000399                  INC         BUFFER                  ;Increment buffer address
000400                  BNE         $040
000401                  INC         BUFFER+1
000402                  BNE         $040
000403                  LDX         #80
000404                  STX         BUFFER+1
000405                  INC         1401+BUFFER
000406  $040            BIT         PROPTNS                 ;Auto Line Feed?
000407                  BVC         $060                    ;  No
000408                  ASL         CRFLAG                  ;Last character CR?
000409                  BCC         $050                    ;  No
000410                  CMP         #ASC_LF                 ;This character LF?
000411                  BEQ         $020                    ;  Yes -- ignore it
000412  $050            CMP         #ASC_CR                 ;This character CR?
000413                  BNE         $060                    ;  No
000414                  ROR         CRFLAG                  ;  Yes -- set CR flag
000415  $060            LDX         PRODPTR
000416                  STA         LOCBUF,X                ;Store character in local buffer
000417  $070            LDX         BUFCNT                  ;Check buffer count for max
000418                  INX
000419                  BEQ         $080
000420                  INC         PRODPTR                 ;Bump producer pointer
000421                  INC         BUFCNT                  ;  and buffer count
000422                  JMP         $020                    ;Loop
000423
000424  $080            JSR         PRIME                   ;Prime the consumer and
000425                  JMP         $070                    ;  recheck buffer count
000426
000427  $090            JSR         PRIME                   ;Make sure consumer is running
000428                  RTS
000429                  .PAGE
000430  ;---------------------------------------------------------------------
000431  ;
000432  ;       Subroutine PRIME
000433  ;
000434  ;       Start up Consumer, and wait until printer is ready.
000435  ;
000436  ;---------------------------------------------------------------------
000437
000438  PRIME           .EQU        *
000439                  BIT         CSTATE
000440                  BVC         $020
000441  $010            LDY         DEVOFF
000442                  LDA         READB,Y                 ;Wait for Ready
000443                  EOR         RDYSTAT
000444                  AND         RDYMASK
000445                  BNE         $010
000446  $020            PHP
000447                  SEI
000448                  JSR         LP_INTR                 ;Call interrupt handler
000449                  LDA         E_REG
000450                  AND         #BITOFF7
000451                  STA         E_REG                   ;Restore Full Speed
000452                  PLP
000453                  BIT         CSTATE
000454                  BVS         $010
000455                  RTS
000456
```

```
000457
000458
000459  ;---------------------------------------------------------------------
000460  ;
000461  ;       Parallel Printer Driver -- Interrupt Handler / Consumer
000462  ;
000463  ;     This routine must be CALLED with INTERRUPTS DISABLED.  During
000464  ;     execution, it selects Fixed Speed mode and ENABLES INTERRUPTS.
000465  ;     It always EXITS in Fixed Speed mode with INTERRUPTS DISABLED.
000466  ;
000467  ;---------------------------------------------------------------------
000468
000469  LP_INTR         LDA          E_REG
000470                  ORA          #BITON7                 ;Set Fixed Speed
000471                  STA          E_REG
000472                  LDY          DEVOFF                  ;Get offset to card addresses
000473                  LDA          CTRLWRD
000474                  AND          #BITOFF7                ;Disable card's interrupt
000475                  STA          CTRLWRD
000476                  STA          CTRLREG,Y
000477                  LDA          #02
000478                  STA          ANYSLOT                 ;Clear 'Any Slot' interrupt
000479                  CLI
000480                  .PAGE
000481                  BIT          CSTATE                  ;Test Int.Handler State
000482                  BPL          $020                    ;  Send a character
000483                  LDX          STATUS,Y
000484                  BVC          $010                    ;  Waiting for ACK
000485                  LDA          READB,Y                 ;Check for READY
000486                  EOR          RDYSTAT
000487                  AND          RDYMASK
000488                  BEQ          $030                    ;Re-strobe printer
000489                  TXA
000490                  EOR          #BITON7
000491                  LDX          #WT_RDY                 ;Wait for Ready
000492                  BNE          $070                    ;  (unconditional branch)
000493
000494  $010            BPL          $050                    ;Wait for ACK
000495
000496  $020            LDA          BUFCNT                  ;Check buffer count
000497                  BEQ          $080                    ;Wait for data
000498                  LDX          CSMRPTR
000499                  LDA          LOCBUF,X                ;Get character from buffer
000500                  EOR          INVERT
000501                  STA          PORTA,Y                 ;  and send it to printer
000502                  DEC          BUFCNT
000503                  INC          CSMRPTR
000504  $030            STA          STROBE,Y                ;Stobe Printer
000505                  LDX          #WT_RDY
000506                  LDA          READB,Y                 ;Printer Ready?
000507                  EOR          RDYSTAT
000508                  AND          RDYMASK
000509                  BNE          $060                    ;  No
000510                  LDX          TIMEOUT
000511  $040            LDA          STATUS,Y                ;Wait for ACK or Time Out
000512                  BMI          $020                    ;  ACK, send next character
000513                  DEX
000514                  BPL          $040
000515  $050            LDX          #WT_ACK                 ;Wait for ACK
000516
000517  $060            LDA          #BITON7                 ;Enable Interrupt
000518
000519  $070            SEI
000520                  STX          CSTATE                  ;Set Int.Handler State
000521                  AND          #BITON7                 ;Enable Interrupt with
000522                  ORA          CTRLWRD                 ;  bit 7 of Accumulator
000523                  STA          CTRLWRD
000524                  STA          CTRLREG,Y
000525                  RTS
000526
000527  $080            SEI
000528                  LDX          #IDLE
000529                  STX          CSTATE                  ;Wait for data
000530                  RTS
000531                  .PAGE
000532  ;---------------------------------------------------------------------
000533  ;
000534  ;       Parallel Printer Driver -- Status
000535  ;
000536  ;---------------------------------------------------------------------
000537
000538  LP_STAT         BIT          OPENFLG                 ;Printer open ?
000539                  BMI          $010
000540                  JMP          NOTOPEN                 ;No, return error
000541
000542  $010            LDY          #00
000543                  LDX          CTLSTAT
000544                  BEQ          STAT00
000545                  DEX
000546                  BEQ          STAT01
000547                  DEX
000548                  BEQ          STAT02
000549                  DEX
```

```
000550                  BEQ         STAT03
000551  BADCTL          LDA         #XCTLCODE               ;Invalid control code
000552                  JSR         SYSERR
000553
000554  STAT00          RTS                                 ;0 -- NOP
000555
000556  STAT01          TYA                                 ;1 -- Status table
000557                  STA         (CSLIST),Y
000558                  RTS
000559
000560  STAT02          TYA                                 ;2 -- New line
000561                  STA         (CSLIST),Y
000562                  RTS
000563
000564  STAT03          LDX         DEVOFF                  ;3 -- Error status and buffer size
000565                  LDA         READB,X
000566                  EOR         RDYSTAT
000567                  STA         (CSLIST),Y
000568                  INY                                 ;Error status byte
000569                  LDA         #0FF                    ;Buffer size, low byte
000570                  STA         (CSLIST),Y
000571                  JSR         $010                    ; high byte
000572                  INY
000573                  LDA         BUFCNT                  ;Number of chars in buffer, low
000574                  STA         (CSLIST),Y
000575  $010            INY
000576                  LDA         #00                     ; high byte
000577                  STA         (CSLIST),Y
000578                  RTS
000579                  .PAGE
000580  ;---------------------------------------------------------------------
000581  ;
000582  ;       Parallel Printer Driver -- Control
000583  ;
000584  ;---------------------------------------------------------------------
000585
000586  LP_CNTL         BIT         OPENFLG                 ;Printer open ?
000587                  BMI         $010                    ;Yes
000588                  JMP         NOTOPEN
000589
000590  $010            LDX         CTLSTAT
000591                  BEQ         CNTL00
000592                  DEX
000593                  BEQ         CNTL01
000594                  DEX
000595                  BEQ         CNTL02
000596                  JMP         BADCTL                  ;Invalid request number
000597
000598  CNTL00          .EQU        *
000599                  BIT         CSTATE                  ;Test consumer state
000600                  BPL         $020                    ;  Ready
000601  $010            JSR         PRIME                   ;Prime consumer and
000602                  BIT         CSTATE                  ;  recheck state
000603                  BMI         $010
000604  $020            LDA         #00
000605                  STA         BUFCNT                  ;Set buffer count to 0
000606                  STA         PRODPTR                 ;Set producer pointer
000607                  STA         CSMRPTR                 ;Set consumer pointer
000608                  STA         CRFLAG                  ;Set CR switch false
000609                  BIT         PROPTNS                 ;Check invert bit and
000610                  BPL         $030
000611                  LDA         #0FF
000612  $030            STA         INVERT                  ;  set INVERT value
000613                  PHP
000614                  SEI
000615                  LDY         DEVOFF
000616                  LDA         CTRLVAL
000617                  AND         #2F
000618                  STA         CTRLWRD                 ;Init UPIC control register
000619                  STA         CTRLREG,Y
000620                  STA         CLEAR,Y                 ;Disable auto strobe
000621                  PLP
000622                  RTS
000623
000624
000625  CNTL01          RTS
000626
000627
000628  CNTL02          RTS                                 ;2 New line
000629                  .END
000630

; ##########################################################################################################
; #   END OF FILE:  PARPRINT.text
; #   LINES      :  630
; #   CHARACTERS :  32172
; #   Formatter  :  Assembly Language Reformatter 1.0.2 (07 January 1998)
; #   Author     :  David T. Craig -- 71533.606@compuserve.com -- Santa Fe, New Mexico USA
; ##########################################################################################################
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