

PCN 46 p30
 MAIN LISTING

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400D      NOP;~~~ THIS PROGRAM WILL DISPLAY CHARACTERS ON YELLOW BACKGROUND
400E      NOP; TOP 3RD OF SCREEN
400F      NOP;BLACK CHARACTERS LIGHT RED BACKGROUND MIDDLE 3RD
4010      NOP;REST OF SCREEN AND BORDER MAGENTA
4011      NOP
4012      NOP
4013      LD SP,(#FA96);          LOAD STACK POINTER FROM SYSTEM STACK
4017      LD DE,#0000;          ZERO ALL REGISTERS
401A      CALL REG
401D      LD B,#08;            NUMBER OF REGISTERS
401F      LD HL,REGSET;        MAKE HL POINT TO DATA BUFFER
4022  LP1: LD E,(HL);          PUT DATA IN DE
4023      INC HL;              NEXT DATA SET
4024      LD D,(HL)
4025      INC HL
4026      CALL REG;           SEND TO REGISTER
4029      DJNZ LP1;          DO 8 TIMES
402B      LD HL,#3FFF;        TOTAL LENGTH OF VRAM
402E      LD DE,#0000;        ZERO ALL VRAM
4031      CALL VRAM
4034      LD C,#00
4036      CALL LOOP
4039      LD DE,#2000;        START OF COLOUR TABLE TOP 3RD OF SCREEN
403C      CALL VRAM;         SEND ADDRESS
403F      LD C,#1A;          1=COLOUR OF CHARACTER 1'S      A= COLOUR OF 0'S
4041      LD HL,#0200;        HOW MANY BYTES TO FILL
4044      CALL LOOP;         DO IT
4047      LD C,#18;          AS ABOVE
4049      LD HL,0200
404C      CALL LOOP
404F      LD C,#18
4051      LD HL,#0800
4054      CALL LOOP
4057      LD DE,#0008;        ADDRESS OF CHARACTER NO 2 TOP 3RD SCREEN
405A      CALL VRAM;         LOAD ADDRESS
405D      LD HL,INV;         MAKE HL POINT TO CHARACTER BYTES
4060      LD B,#08;          8 BYTES EACH CHARACTER
4062  AGN: LD C,(HL);        PUT DATA INTO C
4063      CALL DATA;        SEND TO VDP
4066      INC HL;            ALIGN TO NEXT BYTE
4067      DJNZ AGN;          DO UNTIL FINISHED
4069      LD DE,#0808;        CHARACTER NO 2 MIDDLE 3RD SCREEN
406C      CALL VRAM;         SEND TO REGISTER
406F      LD HL,INV;         AS FOR TOP 3RD
4072      LD B,08
4074  AGN1: LD C(HL)
4075      CALL DATA
4078      INC HL
4079      DJNZ AGN1
407B      LD DE,#1800;        START OF TOP 3RD OF SCREEN
407E      CALL VRAM;         SEND ADDRESS
4081      LD C,#01;          CHARACTER NUMBER
4083      CALL DATA;        SEND TO VDP
4086      LD C,01;           SEND SAME CHARACTER TO BE DISPLAYED AT SCREEN POS 2
4088      CALL DATA;        DO IT
408B      LD B,#08;          SAME AS ABOVE BUT SEND 8 ONE AFTER THE OTHER
408D  PL:  LD C,01
408F      CALL DATA
4092      DJNZ PL
4094      LD DE,#1944;        THIS IS THE MIDDLE 3RD OF SCREEN
4097      CALL VRAM;         SEND ADDRESS

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409A      LD C,01;      2ND CHARACTER FROM MIDDLE 3RD OF CHARACTER GEN TABLE
409C      CALL DATA;  DISPLAY
409F      LD C,01;      DISPLAY
40A1      CALL DATA;  SAME CHARACTER NEXT SCREEN POS
40A4  STOP:  NOP;      LOOP AT END OF RUN
40A5      JR STOP
40A7  REG:  PUSH AF;    ##### SEE NOTES FOR THESE SUB ROUTINES
40A8      PUSH BC
40A9      LD A,E
40AA      OUT (02),A
40AC      LD A,D
40AD      ADD A,#80
40AF      OUT (02),A
40B1      POP BC
40B2      POP AF
40B3      RET
40B4  VRAM: PUSH AF
40B5      PUSH BC
40B6      LD A,E
40B7      OUT (02),A
40B9      LD A,D
40BA      ADD A,#40
40BC      OUT (02),A
40BE      POP BC
40BF      POP AF
40C0      RET
40C1  DATA: PUSH AF
40C2      LD A,C
40C3      OUT (01),A
40C5      POP AF
40C6      RET
40C7  LOOP: CALL DATA
40CA      DEC HL
40CB      LD A,H
40CC      OR L
40CD      JR NZ,LOOP
40CF      RET
40D0  REGSET: DB #02,#00,#C2,#01,#06,#02,#FF,#03,#03,#04,#38,#05,#07,#06,#0D,#07
40E0  INV:  DB 66,165,189,219,60,36,66,129
40E8      RET
40E9      RET
40EA      RET
40EB      RET
40EC      RET

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Symbols:

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REG40A7REGSET40D0
LP14022VRAM40B4
LOOP40C7INV40E0
AGN4062DATA40C1
AGN14074PL408D
STOP40A4

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PCN Issue 46 - p30
LISTING 1

```
11    REM          -----
20    REM ON ENTRY HL POINTS TO DATA
30    REM D = REGISTER NUMBER
40    REM E = DATA
50    REM
60    CODE

409B  BUFFER:      DB #0C;      DATA
409C          DB 04;          REGISTER
409D          DB 127;         AND SO ON FOR ALL REGISTERS
409E          LD HL,BUFFER;    BUFFER HOLDS DATA
40A1          LD B,#08;       NUMBER OF REGISTERS
40A3  LOOP:       LD E,(HL);   GET DATA
40A4          INC HL
40A5          LD D,(HL);     GET REGISTER NUMBER
40A6          INC HL;       ALIGN FOR LOOP
40A7          CALL SETUP;   GO AND TRANSFER IT
40AA          DJNZ LOOP;    DO IT 8 TIMES
40AC  SETUP:     LD A,E;      DATA FIRST
40AD          OUT (02),A;    SEND IT
40AF          LD A,D;       GET REGISTER NUMBER
40B0          ADD A,#80;    MAKE SURE BIT 7 IS SET
40B2          OUT (02),A;   SEND IT
40B4          RET;         ALL DONE RETURN
40B5          RET
40B6          RET
```

Symbols:
BUFFER409BSETUP40AC
LOOP40A3

LISTING 2

```
20    REM          -----
30    REM          ON ENTRY DE HOLDS ADDRESS
40    REM          ON ENTRY C HOLDS DATA
50    REM
60    REM
70    CODE

409C          LD A,E;       GET LSB OF ADDRESS
409D          OUT (02),A;   SEND IT
409F          LD A,D;       GET MSB OF ADDRESS
40A0          ADD A,#40;    RESET BIT 7 SET BIT 6
40A2          OUT (02),A;   SEND IT
40A4          LD A,C;       GET DATA INTO A
40A5          OUT (01),A;   SEND IT
40A7          RET;         RETURN TO CALL OUT
40A8          RET
```

LISTING 3

```
10    REM          Convert screen ti X,Y co-ordinates
20    REM          -----
30    REM
40    REM
50    REM          ON ENTRY HL POINTS TO SCREEN POSITION
60    REM
70    REM
80    CODE

40AE          LD DE,#1800;   START OF SCREEN
40B1          OR A;         CLEAR CARRY FLAG
40B2          SBC HL,DE;    SUB FROM SCREEN LOCATION
40B4          LD DE,#32;    NUMBER OF COLUMNS
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40B7          LD B,00;          CLEAR ANSWER REG (QUOTIENT)
40B9  LOOP:   OR A;           MAKE SURE CARRY FLAG CLEAR
40BA          SBC HL,DE
40BC          JP M,EXIT;       EXIT IF MINUS
40BF          INC B;          INC ANSWER
40C0          JR LOOP;        GO DO IT UNTIL MINUS
40C2  EXIT:   ADD HL,DE;      GET TRUE REMAINDER
40C3          RET;           ON RETURN HL=X POSIT & B=Y POSIT
40C4          RET

```

Symbols:
LOOP40B9EXIT40C2

LISTING 4

```

20  REM      Convert X,Y to SCREEN POSITION
30  REM      -----
40  REM
50  REM
60  REM      ON ENTRY BC = X POSITION
70  REM      "      "  HL = Y POSITION
80  REM
90  REM
100 CODE

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40B7          PUSH BC;         SAVE X POSITION
40B8          LD B,#00;        CLEAR QUOTIENT
40BA  LOOP:   OR A;           CLEAR CARRY FLAG
40BB          SBC HL,DE;      DIVIDE BY SUBTRACTION
40BD          JP M,EXIT;      EXIT IF MINUS
40C0          INC B;          INC QUOTIENT
40C1          JR LOOP;        DO IT UNTIL MINUS
40C3  EXIT:   ADD HL,HL;      MULTIPLY BY 32
40C4          ADD HL,HL;      BY SUCCESSIVE ADDS
40C5          ADD HL,HL
40C6          ADD HL,HL
40C7          ADD HL,HL
40C8          POP BC;         GET X POSITION
40C9          ADD HL,BC;      ADD IT TO ANSWER
40CA          LD DE,#1800     START OF SCREEN LOCATION
40CD          ADD HL,DE;      SET SCREEN POSITION
40CE          RET;           HL = SCREEN LOCATION
40CF          RET
40DO          RET

```

Symbols:
LOOP40BAEXIT40C3