DECUS
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DECUS NO.	8-182
TITLE	Memory Compare
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SOURCE LANGUAGE	PAL-D

MEMORY COMPARE

DECUS Program Library Write-up DECUS No. 8-182

ABSTRACT

Memory Compare resides in page 36_8 of either field. It compares contents of similar addresses in pages $\emptyset$-35_8 of both fields and outputs any differences detected.

OPERATING INSTRUCTIONS

Starting Address - 7400

Options

SR$\emptyset$ = 1	TTY OUTPUT
SR$\emptyset$ = $\emptyset$	PUNCH OUTPUT

Output

1. Four locations per line are output.
2. The output per location is:

Address	Field $\emptyset$ Content	Field 1 Content

3. The output is divided into pages beginning with the page address.
4. The program ends with 7777 to indicate end of comparison.

An example is attached.

The following routine may be used to clear memory before any programs are loaded.

```
7600/    7600
7601/    3600
7602/    2200
7603/    5201

Start at 7600
```

```
4200
4340 4046 0000    4346 4722 0000    4354 3754 0000

4400
4461 4455 0000

4600
4632 6460 0000    4641 6466 0000    4647 4644 0000    4660 4630 0000
4666 4711 0000    4705 4717 0000    4715 4615 0000    4741 4736 0000


5200
5200 5310 0000    5275 5250 0000    5305 5304 0000    5324 4602 0000
5332 4512 0000

5400
5447 5315 0000    5471 5276 0000    5502 5310 0000    5534 5337 0000
5542 4601 0000

5600
5601 0003 0000    5602 0004 0000    5603 4662 0000    5632 5507 0000
5644 4663 0000    5656 5650 0000    5711 5453 0000    5754 4513 0000
5762 0147 0000

6000
6023 0033 7777    6024 4357 0000    6100 5703 0000    6142 0454 0000


6400
6400 0001 0000    6565 7777 0000

6600
6645 7031 0000    6646 7035 0000    6655 0511 0000    6656 0511 0000
6664 0001 0000    6665 0001 0000

7000
7032 6640 0000    7033 3740 0000    7034 5454 0000    7035 7656 0000
7036 7250 0000    7037 6654 0000    7040 6361 0000    7041 6060 0000


7200
7232 0002 0000    7233 0402 0000    7234 0100 0000    7235 0403 0000
7236 0100 0000    7237 0424 0000    7240 0100 0000    7241 0415 0000

7777
```

```
                    /FIELD COMPARISON OF LOC. 0-7400
                    /
          7400      *7400
                    /
  7400    1377      BEG,    TAD (-7400        /CHECK 36 PAGES
  7401    3237              DCA CNT           /COUNTER
  7402    3240              DCA LOC           /SET LOC=0
  7403    7040              CMA
  7404    3000              DCA 0             /MASK=7777
  7405    7604              LAS
  7406    7700              SMA CLA           /OUTPUT TO PUNCH?
  7407    1376              TAD (JMP HIGH     /YES, MODIFY INST
  7410    3313              DCA SW
  7411    4304      RESET,  JMS CRLF
  7412    4304              JMS CRLF
  7413    1375              TAD (-4
  7414    3241              DCA LCNT          /4 LOCATIONS PER LINE
  7415    1374              TAD (NOP
  7416    3247              DCA MOD           /SET 'MOD' TO 'NOP'
  7417    6201      RPT,    CDF
  7420    1640              TAD I LOC         /FIELD 0
  7421    7041              CIA
  7422    6211              CDF+10
  7423    1640              TAD I LOC         /FIELD 1
  7424    7640              SZA CLA           /COMPARE
  7425    4243              JMS BAD           /DIFFERENT, SO OUTPUT
  7426    2240              ISZ LOC           /ADDRESS
  7427    2237              ISZ CNT           /DONE?
  7430    5217              JMP RPT           /NO
  7431    4304              JMS CRLF
  7432    7240              CLA CMA
  7433    4325              JMS PRINT         /TYPE 7777 TO END
  7434    4304              JMS CRLF
  7435    7402              HLT               /FINISHED
  7436    5200              JMP BEG           /REPEAT
                    /
  7437    0000      CNT,    0                 /LOCATION COUNTER
  7440    0000      LOC,    0                 /CURRENT ADDRESS
  7441    0000      LCNT,   0                 /LINE COUNTER
  7442    0000      CF,     0                 /COMPARISON PAGE ADDR.
                    /
  7443    0000      BAD,    0                 /OUTPUT DIFFERENCES
  7444    6201              CDF
  7445    1240              TAD LOC           /FETCH ADDR.
  7446    0373              AND (7600         /PAGE BITS ONLY
  7447    7000      MOD,    NOP               /OR 'JMP CHECK'
  7450    3242              DCA CF            /STORE AS COMPARISON
  7451    1242              TAD CF
  7452    4325              JMS PRINT
  7453    4304              JMS CRLF
  7454    1372              TAD (JMP CHECK
  7455    3247              DCA MOD           /DONT RESET CF UNTIL NEXT PAGE
                    /
  7456    1240      SAME,   TAD LOC           /ADDRESS
  7457    4325              JMS PRINT
```

```
7460  1640            TAD I LOC       /FIELD 0 CONTENT
7461  4325            JMS PRINT
7462  6211            CDF+10
7463  1640            TAD I LOC       /FIELD 1 CONTENT
7464  4325            JMS PRINT
7465  1371            TAD (240        /EXTRA SPACES BETWEEN LOCATIONS
7466  4312            JMS TYPE
7467  1371            TAD (240
7470  4312            JMS TYPE
7471  2241            ISZ LCNT        /LINE DONE?
7472  5643            JMP I BAD       /NO, RETURN
7473  1375            TAD (-4         /YES
7474  3241            DCA LCNT        /RESET LINE COUNT
7475  4304            JMS CRLF        /NEXT LINE
7476  5643            JMP I BAD       /AND RETURN
7477  7041  CHECK,    CIA             /CHECK CURRENT PAGE ADDR.
7500  1242            TAD CF          /WITH STORED PAGE ADDR.
7501  7650            SNA CLA         /SAME?
7502  5256            JMP SAME        /YES, OUTPUT IN SAME BLOCK
7503  5211            JMP RESET       /NO, NEW BLOCK
                /
7504  0000  CRLF,     0               /NEW-LINE
7505  1370            TAD (215
7506  4312            JMS TYPE
7507  1367            TAD (212
7510  4312            JMS TYPE
7511  5704            JMP I CRLF
                /
7512  0000  TYPE,     0                 /TYPE CHARACTER SUBROUTINE
7513  0000  SW,       0               /'AND 0'(=NOP) OR 'JMP HIGH'
7514  6046            TLS
7515  6041            TSF
7516  5315            JMP .-1
7517  5323            JMP TYPA
                /
7520  6026  HIGH,     PLS
7521  6021            PSF
7522  5321            JMP .-1
7523  7200  TYPA,     CLA
7524  5712            JMP I TYPE
                /
7525  0000  PRINT,    0                 /PRINT NUMBER SUBROUTINE
7526  3352            DCA PTEM        /TEMP. STORE
7527  1375            TAD (-4
7530  3351            DCA DCN           /INITIALIZE DIGIT COUNTER
7531  1352            TAD PTEM
7532  7004            RAL             /ONE ASTATE FOR LINK
7533  7004  PNU2,     RAL
7534  7006            RTL             /PUT DIGIT INTO % BITS 9-11
7535  3352            DCA PTEM        /SAME FOR NEXT TIME
7536  1352            TAD PTEM
7537  0366            AND (7  /DIGIT BITS
7540  1365            TAD (260        /TO ASCII
7541  4312            JMS TYPE
7542  1352            TAD PTEM        /RELOAD
```

```
7543  2351            ISZ DCN          /DONE?
7544  5333            JMP PNU2         /NO
7545  7200            CLA              /YES
7546  1371            TAD (240         /SPACE
7547  4312            JMS TYPE
7550  5725            JMP I PRINT
                /
7551  0000    DCN,    0                  /DIGIT COUNTER
7552  0000    PTEM,   0                /TEMP. STORE
                $
7565  0260
7566  0007
7567  0212
7570  0215
7571  0240
7572  5277
7573  7600
7574  7000
7575  7774
7576  5320
7577  0400
```

```
BAD     7443
BEG     7400
CF      7442
CHECK   7477
CNT     7437
CRLF    7504
DCN     7551
HIGH    7520
LCNT    7441
LOC     7440
MOD     7447
PNU2    7533
PRINT   7525
PTEM    7552
RESET   7411
RPT     7417
SAME    7456
SW      7513
TYPA    7523
TYPE    7512
```

3 DETECTED: Ø

IME: 2 SECONDS

RE USED