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I N T E R O F F I C E M E M O R A N D U M

to: distribution

date: 22-feb-79  
from: David R. Butenhof  
dept: Sys. Diag.  
Engineering  
ext: (22)3-2383  
loc/ms: ML21-4/E20

subject: Known DEC/X11 bugs

These are all bugs, of which I am aware, which have been found to date in the current (Jan 79) release of the new DEC/X11 package. This status memo will go out semi-regularly to update all interested parties on current DEC/X11 status from the point of view of the DEC/X11 Support Group. Feel free to update me on problems (or solutions) or distribution.

Monitor (CXMONA0)

- 1) Failure to turn on parity/ECC CSR's due to two auto-increment references to the "same" location. Fixed by CXMONA3: patch relative locations in monitor module PONOF (see load map produced by cnf/linker)

|     |                |
|-----|----------------|
| 264 | 042731/ 000240 |
| 266 | 000002/ 000240 |
| 270 | 052731/ 012731 |
| 276 | 052731/ 012731 |
| 302 | 042731/ 000240 |
| 304 | 000001/ 000240 |

- 2) Fails to recover from powerfail after relocation, due to attempted use of KT-mapped routine by the routine which sets up KT. Fixed by CXMONA3: patch relative locations in monitor module KTSET [this patch must be inserted by the DEC/X11 MOD command after RTE startup]

|    |                  |
|----|------------------|
| 0  | 004767/ 000240   |
| 2  | (global)/ 000240 |
| 34 | 004767/ 000240   |
| 36 | (global)/ 000240 |

- 3) Fails to recover after ^C-powerfail-halt-powerup-restart 1000 sequence, due to restart routine assuming KT is set up properly. Fixed by CXMONA3: patch absolute RTE locations. Do not patch if RTE is to run under APT or XXDP chain mode. The KTSET patch must also be included.

|      |                |
|------|----------------|
| 2320 | 010546/ 000137 |
| 2322 | 012745/ 002712 |
| 2706 | 032767/ 000137 |
| 2710 | 020000/ 002772 |

|      |           |                     |
|------|-----------|---------------------|
| 2712 | 176102/   | 010546              |
| 2714 | 001031/   | 012745              |
| 2716 | 032767/   | 001004              |
| 2720 | 000010/   | 004737              |
| 2722 | 176074/   | (KTSET entry point) |
| 2724 | 001406/   | 012605              |
| 2726 | 010546/   | 010546              |
| 2730 | 012745/   | 012745              |
| 2732 | 001004/   | 001004              |
| 2734 | 004767/   | 000137              |
| 2736 | (global)/ | 002326              |

- 4) Modules of type IOMODR or IOMODP (e.g., modules GTAE and DXAF), which can run only in certain address ranges, will be dropped if they are unable to run for more than 15 minutes, and declared "HUNG". Fixed by CXMONA3: patch relative locations in monitor module SYSCLK. This will prevent modules of the specified type from being declared HUNG, even if they actually are.

Location 1602 protects NBKMOD's from being hung: if you have no NBKMOD's, then you can change this location. Location 1610 protects SBKMOD's, so if you have none of those, you may change this location.

Inserting a 102000 (into either of the locations) will protect an IOMODP from being declared HUNG. Inserting a 112000 (into either of the locations) will protect an IOMODR from being declared hung.

|      |         |                 |
|------|---------|-----------------|
| 1602 | 001000/ | (102000/112000) |
| 1610 | 000000/ | (102000/112000) |

- 5) System error in sorting module list (SIZPL? routine), due to failure to turn off KT after system sizing. Fixed by CXMONA1: patch relative locations in appropriate SIZPL? routine as below; only if not under APT or XXDP chain mode. This patch must be inserted before monitor start up!

|                 |      |         |        |
|-----------------|------|---------|--------|
| SIZPLC, SIZPLD: | 1014 | 005737/ | 005037 |
|                 | 1016 | 000042/ | 177572 |
|                 | 1020 | 001402/ | 000402 |
| SIZPLE:         | 1114 | 005737/ | 005037 |
|                 | 1116 | 000042/ | 177572 |
|                 | 1120 | 001402/ | 000402 |

- 6) Inability to run without at least one BKMOD configured, due to monitor ignoring possibility of null BKMOD pointer and attempting to run the imaginary BKMOD at location 0. Fixed by CXMONA2: patch absolute RTE locations prior to monitor RUN command. This patch will cause any configured BKMOD's to be ignored.

|      |         |        |
|------|---------|--------|
| 3146 | 016700/ | 000416 |
| 4306 | 032767/ | 000443 |

- 7) Communications device modules (including DV-11, DP-11, DU-11, and DUP-11) experience problems, apparently due to fact that PIRQ monitor routine is long and runs at priority 7, locking out interrupts. The old monitor works fine. There is no certain fix at this time.

- 8) In an 11/70, if the actual system size is smaller than the value stored in the system size register, a reference to non-existent memory above actual memory but below the size register limit will trap through vector 114 rather than vector 4. Since the monitor has not yet set up the parity vector when it attempts to size the system, it will halt if the system size register exceeds actual memory size. There is no current fix for this problem.
- 9) Since parity trapping is not enabled during system sizing and setup of memory, some bad memory words may not be found until the RTE has relocated over them: which may result in fatal and undiagnosed errors.
- 10) When running on Q-bus (LSI), some modules (particularly DLAI) with two separate interrupting units (e.g., receiver and transmitter) may turn off one in the interrupt service routine of the other. However, if an interrupt is pending for the other, it has been latched already and will be serviced. This results in an unexpected trap through 0, which can have dire consequences. The following patch will correct the problem:
- ```

      0      105000/ 000002
      2      000000/ 000002

```
- 11) If a parity error is encountered, and the error is not in the first parity/ECC CSR, the routine which searches for the error will hang indefinitely, as it never increments past the first CSR. This will be fixed in the next monitor revision, but can not be patched. If the RTE hangs in a relatively tight loop which the linker load map shows to be in the routine PARERR, this is your problem.

#### Option Modules

- 1) BMDDB      A ^C and restart may result in errors, due to module's failure to initialize SUM? counters to zero. Fixed by CXBMDC0.
- 2) CRAF      May fail after first pass, claiming incorrect number of cards, due to monitor allowing modules to continue iterations after end pass, until all modules have finished a pass; this means some cards are read, then RTE relocates and module is restarted with deck partially read. Fix: (temporary) do not re-load cards until after relocation.
- 3) DLAI      It seems that this module will sometimes fail after a ^C and RUN. It is rarely necessary to do this under the new monitor, and so the best temporary avoidance of the problem would be to type "^C" only when testing is complete.
- 4) DNAG      Will loop if 16 devices are selected, due to

using ASR instead of RDR, which results in device bit map never being zero. Fix by CXDNAG1: patch relative locations

252 006200/ 006000  
370 006200/ 006000

- 5) DVAB There is a problem with line selection in some configurations, and monitor may retain control of CPU long enough for DV11 to complete message and generate MARK signal, which module will interpret as error. It has been reported to hang in SCAN loop (awaiting completion on all lines of all DV11's). There are no fixes at present.
- 6) FPBC In systems with KT and low DMA activity, FPBC will collect errors at a slow rate after several hours of running, and will eventually be dropped. The problem can be avoided by running the exerciser locked at 20000 (i.e., RUNL command from CMD> mode).
- 7) ICAC Module does ENDIT call prior to testing, and skips around ENDIT if current iteration count is 0; which it always will be since the call has not been made. Fixed by CXICAC1: patch module location  
330 001402/ 000240
- 8) KMCB Fails when read or write buffers overlap a 32k boundary. Uncertain whether is problem with hardware, KMCB module, or linker. No present fix.
- 9) LPHB This module has several problems.
- 10) MNA-MNE The DEC/X11 MINC modules were not released with the January 79 release. Corrected by CXMNA0 - CXMNEA0.
- 11) NCB Module for the NCV-11 was not released with the Jan 79 release. Corrected by CXNCBA0.
- 12) PLAA This module will not link due to discrepancy between internal name and file name. Fixed by CXPLAB0. PLAA will work, however, if file XPLAA0.OBJ is re-named to XPLAB0.OBJ before linking is attempted.
- 13) RKAG Doesn't error if drive goes off line. There is no fix at present.
- 14) RKBD Prints soft errors as hard errors. Fixed by CXRKBE0.
- 15) RLAC This module hangs if given reasonable amounts of bus competition (comm modules such as DH-11,

DZ-11 and DUP-11).

- 16) RMAC Does not drop load medium drive. Fixed by CXRMAD0.
- 17) RMBC Dual port modules communicate between port A and port B modules via block 0 of the disk. One can lock the other out from accessing the disk long enough that it can not update in time; resulting in one port dropping itself with a message that the other is not updating block 0. There is no fix. This problem occurs only if both controllers are on the same system.
- 18) RPBH Reports soft errors (transfer errors) as hard errors. Fixed by CXRPBIO.
- 19) RPOB Documentation error in instructions for running single port (port A only). It says to patch location 2072 from 1740 to 240: the location should be 2222. Also, for running multiple drives not including drive 0, the following patch should be included (patch CXRPDB1):
- |      |         |        |
|------|---------|--------|
| 0036 | 000300/ | 000700 |
| 5010 | 017700/ | 000411 |
- 20) RXBB This module has several problems. It is not maintained by the DEC/X11 Support Group, however: problems should be directed to Tom Lawnsby or Larry Prucha.
- 21) TMAI Prints soft errors as hard errors, and will drop itself if RL is load medium due to using bit test instead of compare. Also, it will retry badspot past retry limit. CXTMAI1 and CXTMAI2 will fix the load media problem. CXTMAJ0 will fix all.
- 22) TMBI Gets a single WRITE RETRY EXCEEDED error when writing from BOT on slave 0 if there are multiple slaves on the TM03/TM02. This is fixed by CXTMBI1. It also will fail if its read buffer overlaps a 32k boundary. CXTMBK0 will fix both problems.
- 23) TRAC Incorrect load media check, and an illegal global reference to the monitor. It will also hang on a media badspot. Fixed by patches CXTRAC1, CXTRAC2, CXTRAC3:
- |      |           |        |
|------|-----------|--------|
| 0306 | 132737/   | 122737 |
| 0308 | 040000/   | 000100 |
| 0314 | 001424/   | 001024 |
| 0674 | 022777/   | 000240 |
| 0676 | 002000/   | 000240 |
| 0700 | (global)/ | 000240 |
| 0702 | 001004/   | 000240 |
| 1022 | 000003/   | 000002 |

1056 000003/ 000002  
2276 012777/ 000205

Standard Linker (CZQUXH0)

Does not change module SR2, SR3, or SR4 at link time.  
Patch linker location

22702 to 001401

Does not correctly save or print load map (except with  
LINK command switches /MP or /MLP). Patch linker  
locations:

21260 001560/ 016000  
23142 002454/ 016004

NOTE

The DEC/X11 linkers (CZQUX?0 and  
CZQUY?0) are maintained as XXDP  
utilities, and not by the DEC/X11  
Support Group.

## Option modules listed in memo

|                   |   |
|-------------------|---|
| BMDB . . . . .    | 3 |
| CRAF . . . . .    | 3 |
| DLAI . . . . .    | 3 |
| DNAG . . . . .    | 3 |
| DVAB . . . . .    | 4 |
| FPBC . . . . .    | 4 |
| ICAC . . . . .    | 4 |
| KMCB . . . . .    | 4 |
| LPHB . . . . .    | 4 |
| MNA-MNE . . . . . | 4 |
| NCB . . . . .     | 4 |
| PLAA . . . . .    | 4 |
| RKAG . . . . .    | 4 |
| RKBD . . . . .    | 4 |
| RLAC . . . . .    | 4 |
| RMAC . . . . .    | 5 |
| RMBC . . . . .    | 5 |
| RPBH . . . . .    | 5 |
| RPDB . . . . .    | 5 |
| RXBB . . . . .    | 5 |
| TMAI . . . . .    | 5 |
| TMBI . . . . .    | 5 |
| TRAC . . . . .    | 5 |