Patch Notice:

DG/UX for AViiON Systems
Patch dgux_5.4.2.p45

December 1992

Part Number 017-600031-02

This Patch Notice applies to Models:
P001
Q001

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1. Introduction

This Patch Notice describes Patch dgux_5.4.2.p45 for 5.4.2 DG/UX™ Systems running on Data General's family of AViiON™ computers. In addition, this notice also includes information not currently available in the product manuals (e.g., information developed after the current manuals were printed, or corrections to current manuals).

This patch consists of the following parts:

Part Description	Part Number
DG/UX Patch Notice for patch dgux_5.4.2.p45	017-600031-02
QIC-150 Tape containing patch dgux_5.4.2.p45	079-600305-02
CD-ROM containing patch dgux_5.4.2.p45	068-600033-00

This printed notice always accompanies the software. You may print additional copies of this notice after you have installed the product. A copy suitable for line printers can be found in the file /usr/release/dgux_5.4.2.p45.pn. In the event of differences between the printed copy of the notice and the copy on the distribution medium, the printed copy takes precedence.

2. Environment

2.1 Hardware

Patch dgux_5.4.2.p45 of the DG/UX System will run on Data General AViiON series machines with revision E.2 or later of the MC88100 processor and a minimum of 12 MB of main memory, at least 322MB of disk storage, a system console (or graphics monitor for workstations), and a tape drive (for software distribution). On workstations, 16MB of main memory is recommended.

Patch dgux_5.4.2.p45 of the DG/UX System may also be run on a "diskless" AViiON workstation. This requires a console or workstation monitor, but does not require any disk or tape drive units.

2.2 Software

Your system needs to be running DG/UX 5.4.2 or Trusted DG/UX 5.4.2T System software. Apply this patch ONLY to the system software revisions listed above.

3. Patches

3.1 dgux_5.4.2.p45

Patch dgux_5.4.2.p45 corrects a problem which may, in the unlikely event of a multi-bit hardware memory failure, result in improper program execution or data corruption on AViiON 5200, 5225, 6200, 6225, 6200-20, 6225-20, 5240, 6240, 6240-20, 6280, 7000, and 8000 systems. Without this patch, the systems listed above will compensate for single bit memory errors. With this patch, the systems will continue to compensate for single bit errors, and in addition, DG/UX will:

1. Use syslogd to report and log memory errors. The default configuration for syslogd enables the reporting of memory errors to the system console.
2. Write ECC corrected data back into main memory. This helps prevent single bit errors from degrading into multi-bit errors.

3. Use improved processor synchronization to avoid deadlock in multiprocessor systems when writing ECC corrected data back into the main memory.
4. Panic when the system encounters a multi-bit hardware memory failure. The panic prevents data corruption and minimizes data loss that may result from this hardware memory failure.

This patch also includes dgux_5.4.2.p33 which corrects a hardware irregularity that can cause corruption of a system control register during data access exception processing. This patch contains a kernel software workaround for this problem. The symptoms of this problem are varied and depend upon the state of the process at the time the problem occurs. Possible symptoms are improper program execution or data corruption.

3.2 Soft Error Reporting

A single bit soft memory error indicates that a single bit in a memory word is not correct, but that the system has been able to compensate by reconstructing the correct memory data. There are many environmental factors that contribute to an occasional soft, single bit error. Single bit soft memory errors are expected on most modern computer systems.

Although soft memory error logging has previously been enabled on some AViiON models, patches dgux_5.4.2.p45 and dgux_5.4.1.p76 will enable the logging for AViiON models 5200, 5225, 6200, 6225, 6200-20, 6225-20, 5240, 6240, 6240-20, 6280, 7000, and 8000. These log reports will be stored in the system's error log file (/var/adm/messages) and, by default, will be displayed on the system console. Although some other vendors may not display soft memory errors, Data General feels that reporting these errors may provide customers with some useful information.

The AViiON servers in the list above all have an error correcting (ECC) feature that automatically compensates for single bit memory errors. Therefore, most soft memory error reports should cause no concern and should only serve as a reminder that your AViiON hardware is operating properly. However, if soft memory error reports become very frequent, then the reports may indicate that field service should be contacted. Accordingly, we ask that you con tact field service only if the frequency of soft memory errors exceeds the following limits:

Board Size	Soft Errors per Month
192 MB	40
128 MB	27
64 MB	13
48 MB	40
32 MB	27
16 MB	13

4. Files

The following files make up patch dgux_5.4.2.p45 and will overload the current version of these files when loaded. To be able to back out of this patch, these files should be saved prior to loading this patch.

/usr/options/dgux_5.4.2.p45.name
/usr/release/dgux_5.4.2.p45.pn
/usr/release/dgux_5.4.2.p45.fl
/usr/src/uts/aviion/lb/uc.a
/usr/src/uts/aviion/lb/pdep.a
/usr/src/uts/aviion/lb/dev.a
/usr/src/uts/aviion/lb/io.a
/usr/src/uts/aviion/lb/sc.a
/usr/stand/dgux.installer.diskless

/usr/stand/diskman
/usr/stand/boot.aviion
/dgux.installer
/dgux.starter

5. Installation Instructions

5.1 Loading the Patch

This patch is a diskman loadable tape or CD-ROM and consists of those files listed in Section 4. TO BACK OUT OF THIS PATCH, FILES LISTED IN SECTION 4 SHOULD BE SAVED TO ANOTHER NAME OR BACKED UP BEFORE PROCEEDING. You must bring your system down to the SCM to boot this patch tape or CD-ROM.

To bring your system down to the SCM, perform the following step:

```
# cd /
# shutdown -g0 -y
# halt -q
```

5.2 Loading the Patch from Tape

The following instructions assume that your tape drive is configured at SCSI ID 4. To boot the tape on a workstation (AV3xx/4xx/4xxx):

```
SCM> b st(insc(),4)
```

To boot the tape on a server system (AV5xxx/6xxx/7xxx/8xxx):

```
SCM> b st(cisc(),4)
```

To boot the tape on an AV/53x or AV/46xx:

```
SCM> b st(ncsc(),4)
```

To load this patch from tape, choose option 6, "System Installation Menu" from the Diskman Main Menu. Choose option 5, "All Installation Steps" from the System Installation Menu. Prepare your physical disks by installing the bootstrap on all physical disks. Prepare the required logical disks, using the existing root, swap and usr logical disks. Load the patch contents by responding "yes" when asked to load system software, and selecting package "dgux_5.4.2.p45".

5.3 Loading the Patch from CD

To boot the CD on a workstation (AV3xx/4xx/4xxx):

```
SCM> b sd(insc(),0) dgux -a
DG/UX System Release 5.4.2 Bootstrap
Boot command: sd(insc(),x)+release:dgux_5.4.2.p45/2.standalone
```

(Note that "x" should be replaced with the SCSI ID of your CD-ROM drive.) Once diskman comes up, choose option 6, "System Installation Menu" from the Diskman Main Menu. Choose option 5, "All Installation Steps" from the System Installation Menu. Prepare your physical disks by installing the bootstrap on all physical disks. Prepare the required logical disks, using the existing root, swap and usr logical disks. Since you are booting from +release, answer "yes" to this question:

Do you want to load from the system software distribution disk?

Load the release called "dgux_5.4.2.p45".

5.4 Installing the Patch

You should boot the installer kernel at this point, accepting the default options.

Answer "yes" when asked if you want to build a new kernel. See Chapter 4 of the *Managing the DG/UX System* manual for instructions on reconfiguring the system.

If you are loading this patch from tape, you will want to reboot your system at this point. If you are loading this patch from a CD-ROM, you should halt the system at this point and remove the CD-ROM, then reboot your system.

If you are a diskless server, your client kernels must be rebuilt or the new **dgux.diskless.installer** in **/usr/stand** must be hard linked to the appropriate client's root area.

--- End of Patch Notice ---