Release Notice
CONVEX SPU OS V6.1

Document No. 760-004830-002

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CONVEX Computer Corporation

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Appendices

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Release Notice

1. Introduction

This document describes V6.1 of the CONVEX SPU OS operating system. This document is intended to enhance and clarify the existing permanent documentation for this product with information that is up-to-the-minute, or was developed too late for inclusion in the permanent documentation. Always refer to this release notice before reporting questions or problems with CONVEX SPU OS. Your questions may be answered here. Fixes and workarounds are listed here that may save you time in rediscovering known problems.

CONVEX SPU OS 6.1 supports 3 different kinds of CONVEX Service Processor Units (SPU): The "sp2" (part number 410-001200-200); the "sp4" (part number 410-002223-200); and the "sp5" (part number 410-002223-200). From the standpoint of this document, the sp2 and sp4 are functionally identical.

The remaining sections in this document describe the contents of this release.

- Section 2 describes the contents of the distribution.
- Section 3 contains notes and warnings about the use of the software.
- Section 4 contains enhancements to the previous functionality.
- Section 5 describes fixes for previously reported problems.
- Section 6 describes known software problems.
- Section 7 contains known documentation problems.
- Section 8 contains new documentation.
- Appendix A contains instructions for installing this release on a CONVEX Service Processor Unit (sp2, sp4, or sp5).

CONVEX SPU OS is the sole operating system for the CONVEX SPU and is derived from AT&T UNIX Version 7. CONVEX SPU OS is used as the offline diagnostic environment for all diagnostic test programs and utilities.

2. Contents of This Distribution

The distribution package for this release of CONVEX SPU OS consists of this document and a set of distribution media for the software. Only one type of distribution media are used for CONVEX SPU OS, using the DC600A data cartridge. For both sp2 and sp5, QIC (yellow label) is the only distribution media format.

CONVEX SPU OS Software Release Package (QIC)

ITEM	QTY	TYPE	PART NUMBER	DESCRIPTION	FORMAT
1.	1	QIC	760-001215-207	CONVEX SPU OS, V6.1	Installsw/Boot Image

CONVEX SPU OS Documentation Release Package

ITEM	QTY	TYPE	PART NUMBER	DESCRIPTION
1.	1	Manl.	760-004830-001	CONVEX SPU OS Utilities Manual, 2nd Ed.

3. Notes and Warnings

This section contains general useful information or words of caution about the product.

- This release supersedes CONVEX SPU OS V6.0.
- This release only supports C200, C3200, C3400, P5500 Series systems.

4. Enhancements

Files

- None

Utilities

- None

5. Fixes

- The **restore** utility in the 6.0 version of CONVEX SPU OS did not rebuild file systems properly before restoring a backup tape's contents back onto the SPU disk. This problem would cause the **fsck** utility to hang when rebooting the SPU after such a restore was done. This has been fixed in the 6.1 version of CONVEX SPU OS. Please see the "Utilities" paragraph of the "Known Software Problems" section for an erroneous message that **restore** may produce.

6. Known Software Problems

As of the time of the preparation of this release notice, this section contains the known problems with the CONVEX SPU OS software. Please refer to this section prior to reporting a problem in order to ensure that it has not been previously reported. Serious problems include workarounds if they are known.

Operating System

- Invocation of csh scripts that automatically use the csh to run the script through the mechanism of making the first line of the script '#!/bin/csh' is not supported in this release.

Utilities

- The **restore** utility may produce the following error message:

  Attempt to mount <directory> on <device> FAILED: Mount device busy

  This is NOT an error condition, just an erroneous error message. It can safely be ignored.

- **Tar** does not support the **u** and **r** options.

- The "-r" option of **installsw(8)** does not work properly if the tape is a QIC version of the CONVEX SPU OS release tape.

7. Known Documentation Problems

None.

8. New Documentation

None

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Installing CONVEX SPU OS V6.1

CONVEX SPU OS 6.1 supports 3 different kinds of CONVEX Service Processor Units (SPU): The "sp2" (part number 410-001200-200); the "sp4" (part number 410-002223-200); and the "sp5" (part number 410-002223-200). From the standpoint of this document, the sp2 and sp4 are functionally identical.

Warnings

Before performing the installation of this product, the following information should be examined:

- This release supersedes CONVEX SPU OS V6.0.
- This release only supports C200, C3200, C3400, P5500 Series systems.

The remainder of Appendix A describes various procedures for installing CONVEX SPU OS V6.1. Some describe installing the release on a system on which a working version of CONVEX SPU OS already exists, some describe installing the release on virgin hardware. Note: IOmega drives are **not** supported root devices.

The procedures are described in the following sections:

- Installation on Nonvirgin Hardware—Winchester disk
- Installation on Virgin Hardware—Winchester disk

Installation on Nonvirgin Hardware—Winchester Disk

Always use this procedure to install CONVEX SPU OS V6.1, except when installing the release on virgin hardware or when the previously installed version of CONVEX SPU OS will not boot and execute. If either of those two conditions exists, use the procedure for "Installation on Virgin Hardware".

1. If CONVEX SPU OS is already booted, go to step 5.

2. Place the front panel key switch in the *local* position and depress the system reset button.

3. The soft front panel menu will be displayed. Change the mode to diagnostics and continue the boot process by entering the following commands at the **(fp)>** prompt:

   ```
   (fp)> set mode=diagnostic
   (fp)> boot
   ```

4. The CONVEX SPU OS bootstrap routine will then prompt with:

   ```
   SPU OS boot
   :
   ```

   Enter a carriage return <CR> in response to the prompt. CONVEX SPU OS will now boot and prompt with **(spu)>** when boot is complete.

   NOTE: A file system check is performed during the boot procedure. If errors are detected, they will be corrected if possible. If it is not possible to automatically correct the errors, you will be requested to execute */etc/fsck* manually to correct them before proceeding.

5. If steps 2-4 were skipped, execute */etc/fsck* manually and correct all errors before proceeding:

   ```
   (spu)> /etc/fsck -y
   ```

   If errors are detected in the root file system, reboot CONVEX SPU OS as follows:

   ```
   (spu)> /etc/reboot -n
   (fp)> boot

   SPU OS boot
   :
   ```

   Enter a carriage return <CR> in response to the : prompt.

6. Obtain a scratch cartridge tape and make sure that the write-protect indicator is not set to the "Safe" position.

7. Place the scratch tape in the cartridge tape unit. Backup the SPU disk by entering:

   ```
   (spu)> /etc/backup
   ```

   This process will take 20-30 minutes depending upon the number of files on the SPU disk and on the type of tape drive being used.

8. After the backup tape is complete, remove it from the cartridge tape unit and move the write-protect indicator to the "Safe" position. Label the tape appropriately and put it in a place for safekeeping.

9. Place the CONVEX SPU OS V6.1 install tape (760-001215-207) in the cartridge tape unit.

10. Install the new release by entering:

    (spu)> /etc/installsw -i

    The CONVEX SPU OS software will be read from the tape and installed on the Winchester. You will then be prompted for the time zone if the file */etc/timezone* does not exist.

    Note: You may enter the time zone as either an acronym (as in "cdt") or as an amount of time relative to GMT ("+/-hh:mm"). The "mm" need not be specified if it is zero (i.e. "+/-hh" is sufficient). A list of valid time zone acronyms can be found in the **date**(1) page of the *CONVEX SPU OS Utilities Manual.*

11. You will be prompted to place the keyswitch in *local* mode, after which the SPU will return to the front panel. At the soft front panel prompt, reboot the SPU by entering:

    (fp)> boot

12. If the CONVEX SPU OS bootstrap routine prompts with:

    SPU OS boot...
    :

    enter a carriage return <CR> in response to the prompt. CONVEX SPU OS will now boot and prompt with **(spu)>** when boot is complete.

13. Verify that the *tar* of the appropriate files completed without error by examining the file */tmp/installsw.tar.* If it appears that the *tar* failed, determine the cause of the failure and re-execute the */etc/installsw* command. If the *tar* was successful, remove the log file

    (spu)> rm /tmp/installsw.tar

14. After the installation is complete, remove the tape from the cartridge tape unit.

15. At this time, you may install the appropriate versions of other SPU-resident software such as System Diagnostics, Diagnostics Database, and Convex OS.

16. If the desired mode of operation is diagnostic mode, then this step may be skipped. Otherwise, return to the soft front panel via the */etc/reboot* command:

    (spu)> /etc/reboot

    Change the mode of operation setting to the *desired-mode.* Use the soft front panel *help* command if you need assistance.

    (fp)> set mode=*desired-mode*

    Place the front panel key switch in the *secure* position and enter the boot command to reboot the system:

    (fp)> boot

17. This completes the installation of CONVEX SPU OS V6.1.

Installation on Virgin/Non-bootable Hardware—Winchester Disk

This procedure should be used for installing CONVEX SPU OS V6.1 onto a new Winchester disk or onto a system on which the previously installed version of CONVEX SPU OS will not boot and execute. Note that this procedure only installs the root image, and any files outside of the OS root partition must be loaded from a backup tape or from various release tapes.

1. Place the front panel key switch in the *local* position and depress the system reset button.

2. Place the appropriate CONVEX SPU OS Installsw/Boot Image tape (V6.1 760-001215-207) in the cartridge tape drive.

3. The soft front panel menu will be displayed. Change the mode to diagnostics and continue the boot process by entering the following commands at the **(fp)>** prompt:

   ```
   (fp)> set mode=diagnostic
   (fp)> set boot=tape
   (fp)> boot
   ```

4. The SPU will boot from the cartridge tape and the disk/tape utility (**spu2000**) will display its menu. Either uppercase or lowercase characters may be used for all responses.

   ```
   SPU cartridge tape boot...

   Loading copy 0...

   SPU Disk/Tape Diagnostic Utility
     (O) for OS Root Restore
     (D) for Disk/Tape Utility
     (S) for SPU Hardware Utility
     (R) for Reboot SPU
   Enter utility to execute -
   ```

5. The SPU Winchester disk can be formatted at this time if needed. If the SPU Winchester disk is formatted properly, then skip this step.

   To format the SPU Winchester, enter the following sequence of commands.

   ```
   SPU Disk/Tape Diagnostic Utility
     (O) for OS Root Restore
     (D) for Disk/Tape Utility
     (S) for SPU Hardware Utility
     (R) for Reboot SPU
   Enter utility to execute - d

   SPU Format Disk/Tape Utility
     (D) for Disk (SPU Winchester)
     (T) for Tape (SPU cartridge)
     (I) for IOmega (SPU removable disk)
     (E) for Exit test
   Enter controller type/function - d

   Format desired using standard defaults and no prompts [yn] (y)? n
   ```

   Enter the following:

```
Run maintenance track test? ------------ [yn] (n) -> <CR>
Run format test? ----------------------- [yn] (n) -> y
Run write test ------------------------- [yn] (n) -> n
Run read test? ------------------------- [yn] (n) -> n
Run bad block fix? --------------------- [yn] (n) -> n
Run random read test? ------------------ [yn] (n) -> n
Run seek test? ------------------------- [yn] (n) -> n
LOOP ON TESTS? ------------------------- [yn] (n) -> <CR>
MAX NUMBER OF ERRORS --------- (1)      -> <CR>

Are all inputs correct? - [yn]  -> y
```

NOTE: The bad block fix test is to be run if user has specific locations on the disk that should be considered "bad". These could be relative block locations or they could be entries from the manufacturer's defect list supplied with the disk. The use of this routine is not needed unless defects are to be input by the user.

The format operation will take about 10 minutes to complete. It is strongly recommended that the write and read test not be run, since the write test takes approximately 10 hours, and the read test takes approximately 7.

Answer the followup prompt with an "a" for abort. This will return the utility to the top level menu.

```
Format, Debug or Abort operation [F,D,A]? a
```

6. The CONVEX SPU OS root image can be restored once the format of the SPU Winchester is complete; this image consists of the boot tracks and the OS root file system. The command sequence to enter is as follows. Note that the following output will differ slightly depending on the type of machine and the type of tape drive being used.

```
SPU Disk/Tape Diagnostic Utility $Revision 2.1 $
  (O) for OS Root Restore
  (D) for Disk/Tape Utility
  (S) for SPU Hardware Utility
  (R) for Reboot SPU
Enter utility to execute - u

SPU OS Root Partition Restore
   reading bad block table...0
        Attempting sector: 0 Successful.
   reading root date code...0
        Attempting sector: 0 Successful.

SPU OS root size = 3994 blocks. Backed up ....

 Restore root onto disk or IOmega? [di] (d) d
 Recover the root at this time? [yn] (n) y
 Recover copy 0 or 1? (01) [0] <CR>
```

The restore should take about 8 minutes. The data written to the Winchester disk is verified as it is written; any data mismatches indicate either bad hardware or a badly-formatted disk. However, this procedure does **not** verify that data read from the tape is not corrupt, so two copies of the root image are provided; if copy 0 is bad, repeat the above procedure and answer the last prompt for recover copy with a 1.

7. At this time, answer the top level menu with an "r" to reboot the SPU, and this will return the SPU to the front panel monitor.

```
SPU Disk/Tape Diagnostic Utility
  (O) for OS Root Restore
  (D) for Disk/Tape Utility
  (S) for SPU Hardware Utility
  (R) for Reboot SPU
Enter utility to execute - r
```

The soft front panel menu will be displayed. Change the boot device to disk and continue the boot process by entering the following commands at the **(fp)>** prompt:

```
(fp)> set boot=disk
(fp)> boot
```

8. The CONVEX SPU OS bootstrap routine will then prompt with:

```
SPU OS boot
:
```

Enter a carriage return <CR> in response to the prompt. CONVEX SPU OS will now boot and prompt with **(spu)>** when boot is complete.

9. If this installation is on virgin hardware, go to step 10. If this installation is on nonvirgin hardware whose mount file system(s) are intact, perform a file system check on all file systems and then mount them:

```
(spu)> /etc/fsck
(spu)> mount -a
```

Once the file system is mounted, proceed to step 11.

10. If this installation is on virgin hardware, then the mountable file systems (*/mnt*, */hw*, and */tmp* on the sp2/sp4, */mnt*, */hw*, */tmp*, */sst*, and */scratch* on sp5), will need to be created at this time. Create these file systems by entering:

```
(spu)> /etc/restore
```

This step should take about 10 minutes to complete. Note that if no backup tape is installed, a few error messages from attempted tape access will be generated and can be ignored.

NOTE: If no backup tape was installed for the **/etc/restore** operation, there will now be empty mountable file system(s). You will need to follow the procedures for installing the appropriate versions of other SPU-resident software such as System Diagnostics, Diagnostics Database, and Convex OS following the completion of installation of CONVEX SPU OS.

11. Set up the I/O configuration file for your system:

```
(spu)> cp ioconfig.skel ioconfig
```

Display the *ioconfig* file using *more* or *less*. If this file does not agree with the configuration of the system, then use *vi* or *xed* to edit the file appropriately. If you do not know how to do this, contact the CONVEX Technical Assistance Center.

12. Install the appropriate revisions of System Diagnostics, Diagnostics Database, and Convex OS at this time.

13. This completes the installation of CONVEX SPU OS V6.1