COMPAQ Professional Workstation XP1000

V5.9 Firmware Update Procedures And Release Notes

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1 Introduction

This guide is intended for users of the **COMPAQ Professional Workstation XP1000**.

It describes how to update the system's console firmware and I/O adapter firmware, using the firmware update utilities. It also provides release notes pertaining to the new firmware revisions.

1.1 Firmware and Operating System Revision Matrix

The following table shows the compatibility between the firmware revisions and revisions of OpenVMS, Tru64 UNIX, and Windows NT.

Table 1   COMPAQ Professional Workstation XP1000 FW/SW Revision Matrix

SRM Console	AlphaBIOS FW	OpenVMS	Tru64 UNIX	Windows NT (EV6 only)
V5.9-1	V5.70b	V7.2-x	V4.0x, V5.0x	V4.0

Please Note that the Windows NT operating system is NOT supported on EV67-based XP1000 Systems. Windows NT is supported on EV6-based XP1000 Systems only, for existing customers.

1.2 Associated Documentation

You can find additional information about installing, configuring and booting your COMPAQ Professional Workstation XP1000 in the associated documentation listed in the following table :

Table 2   Associated Documentation

Title	Part Number
COMPAQ Professional Workstation XP1000 Installation and Setup Guide	EK-CPWXP-SI
COMPAQ Professional Workstation XP1000 Dual Boot Installation Guide	EK-ALUNX-OS

2 COMPAQ Professional Workstation XP1000 Console Release Notes

2.1 Non-NT-compatible Console Firmware Components – Revision Information

The latest default Firmware Update Bootfile "XP1000_V59_1.EXE" on the Alpha Systems Firmware Update CD V5.9, contains the SRM Console V5.9-1. The firmware package for this release has the following components (* = CHANGED since V5.8 release of XP1000 Firmware) :

Table 3   Non-NT-compatible Console V5.9 Firmware Components and Revisions

Component	Revision Information
SRM Console	5.9-1 *
PCI Update Utility	5.9 *
VMS PALcode	1.88-27 *
UNIX PALcode	1.83-22 *
ISP10x0 FW	5.57
EV6 SROM	A.B
EV67 SROM	B1a
PIC	0.36

(On the XP1000 the SROM and PIC are hard-coded on the module, and are not part of the ongoing firmware releases, but for completeness, their current revisions are included in the above list).

2.2 NT-compatible Console Firmware Components – Revision Information

The non-default Firmware Update Bootfile "XP1000_NT_V59_1.EXE" on the Alpha Systems Firmware Update CD V5.9, contains the SRM Console V5.9-1. The firmware package for this release has the following components (* = CHANGED since V5.8 release of XP1000 Firmware) :

Table 4   NT-compatible Console V5.9 Firmware Components and Revisions

Component	Revision Information
SRM Console	5.9-1 *
AlphaBIOS (REQUIRES HAL Rev G FIRST!!!)	5.70b

PCI Update Utility	5.9	*
VMS PALcode	1.88-27	*
UNIX PALcode	1.83-22	*
ISP10x0 FW	5.57	
EV6 SROM	A.B	
EV67 SROM	B1a	
PIC	0.36	

(On the XP1000 the SROM and PIC are hard-coded on the module, and are not part of the ongoing firmware releases, but for completeness, their current revisions are included in the above list).

2.3 I/O Adapter Firmware Revisions

The I/O Adapter Update Utility (XP1000_PCI_V5_9.EXE) on the V5.9 Firmware CD contains the following I/O Adapter Firmware Revisions (none changed since last release) :

Table 5   I/O Adapter Firmware Revisions

Adapter	HW Revision	Firmware Revision
DEFPA	All revs	3.20
KZPSA	All revs	A12

2.4 Console Enhancements and New Features

The following are enhancements and new features contained in the COMPAQ Professional Workstation XP1000 console firmware in this release :

- Fixed bug in which the system would hang if the firmware was updated to the Non-NT Console, with the "os_type" variable set to "NT".

- Fixed bug in which the console would sometimes incorrectly go to the XDELTA debugger breakpoint prompt, on the first power-up after the firmware was updated to V5.8-3.

- Added support for use of console serial line when doing X86 Emulation of BIOS Extension ROM-Based Utilities.

- Fixed stack problem when doing "shutdown -r now" in UNIX.

- Fixed miscellaneous bugs in the X86 Emulator code.

- Fixed bug in USB error handling.

- Added Logout Dump support for error handling.

- Added console recognition for FCA-2xxx Fibre Channel HBA.

- Fixed bug in recognition of graphics keyboard.

- Corrected info printed out when setting xdelta on or off.

2.5 USB (Universal Serial Bus) Support

Although limited console support for USB keyboard (for OS booting) is provided in this release, it is DISABLED by default by the Firmware, pending resolution of an intermittent hardware interaction problem found during final qualification testing. To enable USB support, you can set the console environment variable "usb_enable" to "on" prior to booting the operating system.

3 COMPAQ Professional Workstation XP1000 Firmware Update Procedures

This chapter explains how to upgrade the COMPAQ Professional Workstation XP1000 firmware. Consult the appropriate section for system information, depending on whether you are running Tru64 UNIX, OpenVMS, or Windows NT Operating System.

3.1 Updating Console Firmware Using the CD

3.1.1 Tru64 UNIX and Open VMS Users

NOTE: In the following example, the "console" environment variable is set to "serial" mode. In "graphics" mode, the printout varies slightly.

1. **Load the "Alpha Systems Firmware Update CD" into the CD-ROM Drive. Then, from the SRM Console prompt, Initialize the System :**

```
>>>init


OpenVMS PALcode V1.78-24, Digital UNIX PALcode V1.71-20

FF.FE.FD.FC.FB.FA.F9.F8.F7.F6.F5.F3.F2.F1.F0.EF.EE.ED.EC.EB.EA.E9.F4.E8.E7.E6.E5.E4
COMPAQ Professional Workstation XP1000
Console V5.8-4 Sep  8 2000 12:36:04
>>>
```

2. **Enter (show device) to find name of CD-ROM Drive (dqa0 in this example) :**

```
>>>show device
dka0.0.0.6.1              DKA0                        RZ2DD-KS  0306
dka200.2.0.6.1           DKA200            Quantum XP34550W  LXTA
dqa0.0.0.107.0           DQA0        TOSHIBA CD-ROM XM-6302B  1017
dva0.0.0.0.0             DVA0
ewa0.0.0.3.1             EWA0              00-00-F8-71-75-5C
pka0.7.0.6.1             PKA0                   SCSI Bus ID 7  5.57
>>>
```

3. **Enter (boot) command as shown, using the above CD Drive name :**

```
>>>boot dqa0
(boot dqa0.0.0.107.0)
block 0 of dqa0.0.0.107.0 is a valid boot block
reading 1082 blocks from dqa0.0.0.107.0
bootstrap code read in
base = 1ac000, image_start = 0, image_bytes = 87400
initializing HWRPB at 2000
initializing page table at 7fee000
initializing machine state
setting affinity to the primary CPU
jumping to bootstrap code
```

4. The system will respond by displaying "READ ME FIRST" information on the screen (which you should read and scroll through by pressing the ENTER key), followed by display of the default firmware update utility bootfile name, and the prompt "Bootfile:" At this point, you may press the RETURN or ENTER key to load the latest (current) update, or you may type a specific bootfile name to load a previous (older) version.

```
The default bootfile for this platform is

        [XP1000]XP1000_V59_1.EXE

Hit <RETURN> at the prompt to use the default bootfile.

Bootfile: <USER HITS ENTER KEY>


OpenVMS PALcode V1.88-27, Digital UNIX PALcode V1.83-22

FF.FE.FD.FC.FB.FA.F9.F8.F7.F6.F5.F3.F2.F1.F0.EF.EE.ED.EC.EB.EA.E9.F4.E8.E7.E6.E5.E4
COMPAQ Professional Workstation XP1000
Console (UPD) V5.9-1 Dec 14 2000 16:04:15
>>>Execute Update Sequence
Update Script Complete
(boot pmem:180000)
bootstrap code read in
base = 180000, image_start = 0, image_bytes = 800000
initializing HWRPB at 2000
initializing page table at 7fee000
initializing machine state
setting affinity to the primary CPU
jumping to bootstrap code

*** COMPAQ Professional Workstation XP1000 -- Firmware Update V5.9_1 ***

    Use HELP or ? for help

Update
VERIfy
List
Show
DUmp
VERBose
NVerbose
DEbug
NDebug
?
Apu->
```

5. Enter (update) command as shown, and answer yes to the question (note - the update may take a minute or so - DO NOT ABORT THE PROGRAM):

```
Apu-> update
APU-I ARE YOU READY TO PROGRAM (SRM) ROM DEVICE ? (Y/N) y
APU-I ERASING (SRM) ROM DEVICE
APU-I PROGRAMMING (SRM) ROM DEVICE
APU-I VERIFY LOADED (SRM) ROM IMAGE
APU-I VERIFY LOADED (SRM) ROM IMAGE DONE
APU-I PROGRAMMING (SRM) ROM COMPLETED
APU-I ERASING (ARC/AlphaBIOS) ROM DEVICE
APU-I PROGRAMMING (ARC/AlphaBIOS) ROM DEVICE
APU-I VERIFY LOADED (ARC/AlphaBIOS) ROM IMAGE
APU-I VERIFY LOADED (ARC/AlphaBIOS) ROM IMAGE DONE
APU-I PROGRAMMING (ARC/AlphaBIOS) ROM COMPLETED
Apu->
```

6. Enter (exit) command .

```
Apu-> exit
...Please Cycle System Power ...
```

7. **Turn system power OFF and back ON.**

```
<USER CYCLES THE POWER>


OpenVMS PALcode V1.88-27, Digital UNIX PALcode V1.83-22

FF.FE.FD.FC.FB.FA.F9.F8.F7.F6.F5.F3.F2.F1.F0.EF.EE.ED.EC.EB.EA.E9.F4.E8.E7.E6.E5.E4
COMPAQ Professional Workstation XP1000
Console V5.9-1 Dec 14 2000 16:19:05
>>>
```

3.1.2 Windows NT Users

To start the firmware update utility from CD perform the following steps:

1. Shutdown Windows NT and restart the system.

2. Insert the Firmware Update CD into the CD-ROM drive.

3. While AlphaBIOS is starting press F2 and wait for the setup screen to appear.

4. Select "AlphaBIOS Upgrade…" from the initial Set-up Menu.

5. After the APU Update Program starts, follow the instructions from the previous section, beginning at **STEP 5**.

3.2 Updating I/O Adapter Firmware

1. Follow the Instructions in Steps 1-4 of section 3.1.1 to boot the firmware CD, etc., until you get the to the "bootfile" prompt. At that point, enter the filename [xp1000]xp1000_pci_vx_x.exe, where vx_x is the particular version of the I/O adapter update utility (LFU) on the current CD :

```
Bootfile: [xp1000]xp1000_pci_v5_9.exe


OpenVMS PALcode V1.88-27, Digital UNIX PALcode V1.83-22

FF.FE.FD.FC.FB.FA.F9.F8.F7.F6.F5.F3.F2.F1.F0.EF.EE.ED.EC.EB.EA.E9.F4.E8.E7.E6.E5.E4
COMPAQ Professional Workstation XP1000
Console (LFU) V5.9-1 Dec 14 2000 16:09:09

Checking dqa0.0.0.107.0 for the option firmware files. . .
Copying DFXAA320 from dqa0.0.0.107.0. . .
Copying KZPSAA12 from dqa0.0.0.107.0. . .


             ***** Loadable Firmware Update Utility *****
   -----------------------------------------------------------------------------
    Function    Description
   -----------------------------------------------------------------------------
```

```
   Display     Displays the system's configuration table.
   Exit        Done exit LFU (reset).
   List        Lists the device, revision, firmware name, and update revision.
   Readme      Lists important release information.
   Update      Replaces current firmware with loadable data image.
   Verify      Compares loadable and hardware images.
   ? or Help   Scrolls this function table.
   ---------------------------------------------------------------------------

   UPD>
```

2. Enter (list) command to observe old and new firmware revisions.

```
   UPD> list

   Device            Current Revision    Filename            Update Revision

   pkb0              A11                 kzpsa_fw            A12

                                         dfxaa_fw               3.20

   UPD>
```

3. Enter (update) command to update firmware. (In this example the kzpsa is the only updateable adapter present. If no updateable adapters are present, the message "not supported under LFU" will appear).

```
   UPD> update

   Confirm update on:
   pkb0
   [Y/(N)]y
   WARNING: updates may take several minutes to complete for each device.

                           DO NOT ABORT!

   pkb0             Updating to A12...  Verifying A12...  PASSED.

   UPD>
```
4. Enter (exit) command .

```
   UPD> exit
   Please reset the system......
```

5. Turn system power OFF and back ON.

```
   <USER CYCLES THE POWER>


   OpenVMS PALcode V1.88-27, Digital UNIX PALcode V1.83-22

   FF.FE.FD.FC.FB.FA.F9.F8.F7.F6.F5.F3.F2.F1.F0.EF.EE.ED.EC.EB.EA.E9.F4.E8.E7.E6.E5.E4
   COMPAQ Professional Workstation XP1000
   Console V5.9-1 Dec 14 2000 16:19:05
   >>>
```

3.3 Preparing a Firmware Update Floppy Diskette

Console Firmware can also be updated by using a floppy diskette. There are several ways to prepare a firmware update floppy diskette, and these are detailed in the following sections. You can build the

floppy using firmware update utility images obtained from the firmware CD or from the Web at :
ftp://ftp.digital.com/pub/Digital/Alpha/firmware/readme.html

3.3.1 Windows NT Users

1. Copy the firmware update utility image to a FAT-formatted floppy, and rename the file to **fwupdate.exe** on the floppy.

2. While running AlphaBIOS Press F2 to invoke the setup utility.

3. Insert the floppy into the floppy drive (make sure no CD is present in the CD drive).

4. Select "AlphaBIOS Upgrade …" (note: the load may take some time, please be patient).

5. Use the "update" command at the APU prompt, as described in previous sections above.

3.3.2 Tru64 UNIX Users

To make an SRM Console-bootable floppy on a UNIX system, perform the following:

1. Make sure you have a blank low-level-formatted floppy. For example, to format a floppy in drive zero :
   # fddisk –fmt /dev/rfd0a

2. Download the file **mkbootfirm.tar** from ftp://ftp.digital.com/pub/Digital/Alpha/firmware/utilities/ .

3. Untar the mkbootfirm.tar file as follows:

   # tar xvf mkbootfirm.tar

   (Please note that this creates a sub-directory named **mkbootfirm**)

4. Copy the firmware update utility image to the sub-directory **mkbootfirm**, and rename the file to **fwupdate.exe** .

5. Change the working directory to the sub-directory **mkbootfirm**, and run **mkbootfirm** on the firmware image that you downloaded :

   # cd mkbootfirm
   # ./mkbootfirm fwupdate.exe | dd of=/dev/rfd0c bs=64k

6. Insert the floppy on the target system and boot it from the SRM console :

   >>> boot dva0

3.3.3 OpenVMS Users

To make an SRM Console-bootable floppy on an OpenVMS system, perform the following:

1. Copy the firmware update utility image to your system, and rename the file to **fwupdate.exe**.

2. Enter the following VMS commands to make a bootable floppy (where the floppy is dva0) :

> **$ set file/attr=(rfm:fix,lrl:512,mrs:512,rat:none) fwupdate.exe**
> **$ init/dens=hd/index=begin dva0: fwupdate**
> **$ mount dva0: fwupdate**
> **$ create/dir dva0:[xp1000]**
> **$ copy/contig fwupdate.exe dva0:[xp1000]**
> **$ mcr writeboot**
> **no**
> **yes**
> **dva0:[xp1000]fwupdate.exe**
> **$ dismount dva0:**

3. Insert the floppy on the target system and boot it from the SRM console :

> **>>> boot dva0**

3.3.4 DOS/Windows Users

To make an SRM Console-bootable floppy on an Intel-based DOS/Windows system, perform the following:

1. Copy the firmware update utility image to your system, and rename the file to **fwupdate.exe**.

2. Download the file **mkboot.exe** from ftp://ftp.digital.com/pub/Digital/Alpha/firmware/utilities/ , and place it in the same folder as the update image (such as **c:\tmp**)

3. From a DOS window, run the mkboot program as follows :

> **C:\tmp> mkboot fwupdate.exe**

4. Insert the floppy on the target system and boot it from the SRM console :

> **>>> boot dva0**