

# ***Qik***DRIVE & ***Qik***CACHE

## **Solaris Software Installation Guide**

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# Software Installation

Thank you for purchasing a *QikDRIVE* or *QikCACHE* PCI card. From this point on the *QikCACHE* will be referred to as a *QikDRIVE* as installation instructions are the same for both products. The only difference between the two devices is that the *QikCACHE* does not have secondary power support for retaining data.

The *QikDRIVE* is shipped with a driver that supports Microsoft, Linux and Solaris operating systems.

New drivers and latest revisions of current drivers and manuals for your *QikDRIVE* can be downloaded from the Platypus Technology web page.

[www.platypus.net](http://www.platypus.net)

On the website select *Support* then *Drivers* to locate your required driver/manual. If you experience any difficulties whilst navigating the website, please contact a member of our technical support team using the details on page [17](#).

# Solaris

The current Solaris driver was written for Solaris 7 and 8, 32-bit and 64-bit kernels for the SPARC machine and Solaris 8 32-bit for the INTEL machine. To install the *QikDRIVE* into a system running Solaris, use the following procedures. You have to be able to log in as a superuser.

## Preparation for the *QikDRIVE* Installation

1. Please refer to the SPARC manual on how to properly install a new hardware device.
2. Before you install the device, type the following command:  
**# touch /reconfigure**  
this helps the system's reconfiguration as a super-user.
3. Shut down and turn off the system safely.
4. Using the anti-static strap, carefully insert and secure the *QikDRIVE* into any available PCI slot as described in the *QikDRIVE* user manual.
5. Connect the power adapter to the socket at the back of the *QikDRIVE*, secure with the DC Plug Retainer and replace the cover on your computer.
6. When you turn the computer's power on, the installed device should be configured automatically by the operating system. This can be confirmed by noting the presence of a new "scsi" entry under one of the "pci" nodes in the system device tree by typing the following command:  
**% prtconf**
7. Copy the file "PTAqd\_sparc\_X.X.tar.Z" (where X.X refers to the binary version e.g. 1.3) from the CDROM to your usual temporary working directory, such as "~/tmp".  
For example:  
**% cp /cdrom/cdrom0/PTAqd\_sparc\_X.X.tar ~/tmp**  
(Note: If installing from the Platypus web site the file name may differ slightly.)

8. Verify the contents list of files in the file PTAqd\_sparc\_X.X.tar:  
    % **cd ~/tmp**  
    % **tar tvf PTAqd\_sparc\_X.X.tar**
9. Flatten the file with the following command:  
    % **tar xvf PTAqd\_sparc\_X.X.tar**
10. A directory named PTAqd should be created. This can be verified by typing:  
    % **ls -Fl**

## Adding *Qik*DRIVE Packages

1. Enter the working directory name where PTAqd\_sparc\_X.X.tar is flattened, if necessary use the following command:  
    % **cd ~/tmp**
2. Login as Superuser, providing the root password when prompted:  
    % **su**  
    **Password:**  
    #
3. Add the package by typing:  
    # **pkgadd -d ./ PTAqd**  
or  
    # **pkgadd -d ./**  
and follow the instructions displayed onscreen.
4. The package that you have chosen will be added. After successful installation the following message will appear:  
    **"Installation of <PTAqd> was successful"**  
  
Note: The *Qik*DRIVE will be immediately available for operation after successful installation of the package.
5. Verify the integrity of the package using the following command:

**# pkgchk PTAqd**

Successful installation is confirmed when no message appears onscreen.

6. To remove the package, use the following command:

**# pkgrm PTAqd**

## Formatting the *Qik*DRIVE

1. To format the device enter the format command:

**# format**

then follow the instructions onscreen.

For more information on how to use the format utility, please refer to the “System Administration Guide Volume I, II and III”.  
<http://docs.sun.com/ab2/coll.47.11/@Ab2CollView?Ab2Lang=C&Ab2Enc=iso-8859-1>

You can view the default Volume Table of Content (VTOC) using the following command:

**# prtvtoc <raw\_device\_name>**

(E.g. **# prtvtoc /dev/rdisk/c2d3s2**)

The default number of heads is 16 and the size of a sector is 64. The number of physical cylinders can be calculated using the formula below.

**Number of Physical Cylinders = Total Block Size / (Number of Heads \* Sector Size)**

E.g. if the block size is 1048576 (512Mb) then

**Number of physical cylinders = 1048576 / (16 \* 64) = 1024**

Total Block Size can be obtained by running the **qdstat** utility provided. Please refer to the section on *Testing, Monitoring and Diagnostics* on page [17](#).

The Solaris file system usually requires 2 alternative cylinders for its own purpose such as backup labelling. The number of accessible data cylinders is usually equal to the number of physical cylinders - 2. The current default number of the alternative cylinders of the *QikDRIVE* is 0.

**Number of Accessible Cylinders = Number of Physical Cylinders - Number of Alternative Cylinders.**

When formatting the drive for the first time after power off or after driver installation, follow the normal format procedure (see Appendix A for an example) otherwise refer to the section *Important Notes regarding the QikDRIVE* on page 12, (see appendix B for an example). For further information on formatting refer to the format utility man page:

**% man format**

The format utility will display the available selection of disks; choose the option corresponding to your newly installed *QikDRIVE*.

(The device name will vary according to the type of platform and the configuration of your system, please refer to your system administration notes regarding the device naming convention for your machine.)

1. When offered a choice of disks, choose “other”
2. Enter your *QikDRIVE* parameters when prompted. Table 1 shows some recommended values. The number of physical cylinders will vary depending on the amount of RAM installed on the *QikDRIVE*; refer to the Table 2.

**Table 1**

Parameter	Value
Heads	16
Alternate cylinders	2
Sectors	64

Table 2

Amount of RAM installed in <i>Qik</i> DRIVE	Number of Physical Cylinders (# of Accessible Cylinders)
512 MB	1024 (1022)
1024 MB / 1GB	2048 (2046)
2 GB	4096 (4094)
4GB	8192 (8190)
8 GB	16384 (16382)

All other parameters can be left at their default values.

3. When asked for a drive name enter, for example:

**qd**

4. Choose the **label** command from the format menu.

The **format utility** can also be used to **partition** or **analyse** the device. Please refer to the format utility man page (as described on page 7) for more information on partitioning and analysing.

<http://docs.sun.com/ab2/coll.47.11/SYSADV1/@Ab2PageView/22987?Ab2Lang=C&Ab2Enc=iso-8859-1>

When using **analyse** with the format utility, type **setup** to set a test environment, the size of which should not exceed the amount of available cylinders. The alternative cylinders are normally used to store the disk label and should not be used in case of deletion of the disk label. The number of available cylinders therefore, is the number of physical cylinders minus the number of alternative cylinders. (E.g. if there are 1024 physical cylinders of which 2 have been set as alternative cylinders, the number of available cylinders will be 1022.)



## Creating a new File System on the *Qik*DRIVE

1. To create a new file system on the *Qik*DRIVE:  
    **# newfs <raw\_device\_name>**  
    (E.g. **# newfs /dev/rdisk/c2d3s0**)  
    then follow the instructions displayed onscreen.
2. Check the file system with the “fsck” command:  
    **# fsck <raw\_device\_name>**  
    (E.g. **# fsck /dev/rdisk/c2d3s0**)
3. To examine the device without actually constructing a new file system on the *Qik*DRIVE:  
    **# newfs -Nv <raw\_device\_name>**  
    (E.g. **# newfs -Nv /dev/rdisk/c2d3s0**)

## Mounting the *Qik*DRIVE

1. To mount the device:  
    **# mount <block\_device\_name> <mount\_point>**  
    (E.g. **# mount /dev/dsk/c2d3s0 /mnt/qda**)
2. To unmount the device:  
    **# umount <mount\_point>**  
    (E.g. **# umount /mnt/qda**)

## Testing, Monitoring and Diagnostics

When installed on Solaris, the device can be monitored or tested using the following commands:

**qdstat**

**iostat**

**“qdstat”: R/W and Error Statistics on the Installed *Qik*DRIVES**

1. Change to the installed package PTAqd/bin directory:

```
# cd /opt/PTAqd/bin
```

2. Call up the list of options:

```
# qdstat
```

usage:

```
qdstat <raw_device_name> -<option>
```

raw\_device\_name:

e.g.: /dev/rdisk/cx(tx)dxsx

option:

i: *Qik*DRIVE's Current State

s: *Qik*DRIVE's R/W/Error Statistics

r: Toggle R/W/Error Statistics reset flag

3. A raw\_device\_name is assigned by the operating system. Check the name of the installed *Qik*DRIVE:

```
# ls -l /dev/rdisk | grep scsi
```

4. Locate the file ending in: **.../scsi@[pci-slot-number]:[a-h],raw**. For example if a *Qik*DRIVE is put in the pci slot 1 then the whole raw device disk's name should end with **.../scsi@1:c,raw** and the absolute filename would be **/dev/rdisk/c?d1s2**.

5. To check the available maximum blocks, use the option **-I**

6. To display the number of blocks written, read, correctable or uncorrectable error, use the option **-s**

```
# ./qdstat <raw_device_name> -i
```

(E.g. # **./qdstat /dev/rdisk/c2d3s2 -i**)

A sample output would be:

```
Raw device name:           /dev/rdisk/c2d3s2
Total # blocks READ         =    0 blocks
Total # blocks WRITTEN      =    0 blocks
Total # correctable errors  =    0
Total # uncorrectable errors =    0
Sunnyboy # qdstat /dev/rdisk/c2d3s2 -i
```

Raw device name:	/dev/rdisk/c2d3s2
# <i>Qik</i> DRIVE type:	<i>Qik</i> DRIVE1
# Raw device location:	/dev/rdisk/c2d3s2
# Serial Number:	3001541
# EEPROM Revision Number:	2
# Flex Version:	vF2A2
# MAX ID:	ab
# MAX VERSION:	1
# MAX ROWS, COLS, BANKS:	12,11,2
# Total blocks:	1048576 blocks
# Total capacity:	512 Mbytes
# ECC Memory:	installed
# CAPACITY in DIMM [0]:	1048576 blocks

### **“iostat”: Generic I/O Performance Testing Tools**

1. To conduct a performance test, use the iostat command. You can refer to the man page for more information. A typical example is

**# iostat -DMx 1 10000**

## Important notes regarding the *Qik*DRIVE

1. The *Qik*DRIVE contents are volatile, and will be lost the machine is turned off, connect an auxillary power source to the *Qik*DRIVE to make its contents persistent.
2. The *Qik*DRIVE is not fully supported by the Solaris format utility. When reformatting the *Qik*DRIVE accept all the default values by continuously pressing the return key. Following this, use the type command in the format utility, choose **other** and re-enter the appropriate values of the current *Qik*DRIVE (See Appendix B for example).
3. The drive type displayed by the format utility for the *Qik*DRIVE is of type 'unknown', this is normal.
4. The *Qik*DRIVE is not supported by the Solaris sunvts utility.
5. The *Qik*DRIVE does not support the usual Solaris long device name scheme.

## Appendix A.

(Screen dump of sample format session using Ultra5 with 3G *Qik*DRIVE8 with total block size 6291456 blocks)

AVAILABLE DISK SELECTIONS:

**0. c0t0d0 <ST320423A cyl 39691 alt 2 hd 16 sec 63> /pci@1f,0/pci@1,1/ide@3/dad@0,0**

**1. c1d3 <drive type unknown>  
/pci@1f,0/pci@1/scsi@3**

Specify disk (enter its number): **1**

AVAILABLE DRIVE TYPES:

**0. other**

Specify disk type (enter its number): **0**

Enter number of data cylinders: **6142**

Enter number of alternate cylinders[2]:

Enter number of physical cylinders[6144]:

Enter number of heads: **16**

Enter number of data sectors/track: **64**

Enter rpm of drive[3600]:

Enter format time[default]:

Enter cylinder skew[default]:

Enter track skew[default]:

Enter tracks per zone[default]:

Enter alternate tracks[default]:

Enter alternate sectors[default]:

Enter cache control[default]:

Enter prefetch threshold[default]:

Enter minimum prefetch[default]:

Enter maximum prefetch[default]:

Enter disk type name (remember quotes): **"qd"**

selecting c1d3

No defect list found

[disk formatted, no defect list found]

## FORMAT MENU:

disk       - select a disk  
type       - select (define) a disk type  
partition - select (define) a partition table  
current    - describe the current disk  
format     - format and analyze the disk  
repair     - repair a defective sector  
show       - translate a disk address  
label      - write label to the disk  
analyze    - surface analysis  
defect     - defect list management  
backup     - search for backup labels  
verify     - read and display labels  
save       - save new disk/partition definitions  
volname    - set 8-character volume name  
!<cmd>    - execute <cmd>, then return  
quit

format> label

Ready to label disk, continue? y

format>

## Appendix B.

(Screen dump of sample reformat session using Ultra5 with 3G *Qik*DRIVE8 with total block size 6291456 blocks)

AVAILABLE DISK SELECTIONS:

**0. c0t0d0 <ST320423A cyl 39691 alt 2 hd 16 sec 63>  
/pci@1f,0/pci@1,1/ide@3/dad@0,0**

**1. c1d3 <qd cyl 6142 alt 2 hd 16 sec 64>/pci@1f,0/pci@1  
/scsi@3**

Specify disk (enter its number): 1

Enter number of physical cylinders[6119]:

Enter rpm of drive[3600]:

Enter format time[default]:

Enter cylinder skew[default]:

Enter track skew[default]:

Enter tracks per zone[default]:

Enter alternate tracks[default]:

Enter alternate sectors[default]:

Enter cache control[default]:

Enter prefetch threshold[default]:

Enter minimum prefetch[default]:

Enter maximum prefetch[default]:

selecting c1d3

No defect list found

[disk formatted, no defect list found]

FORMAT MENU:

- disk - select a disk
- type - select (define) a disk type
- partition - select (define) a partition table
- current - describe the current disk
- format - format and analyze the disk
- repair - repair a defective sector
- show - translate a disk address
- label - write label to the disk
- analyze - surface analysis
- defect - defect list management

backup - search for backup labels  
verify - read and display labels  
save - save new disk/partition definitions  
volname - set 8-character volume name  
!<cmd> - execute <cmd>, then return  
quit

format> type

#### AVAILABLE DRIVE TYPES:

- 0. qd
- 1. other

Specify disk type (enter its number)[0]: 1

Enter number of data cylinders: 6142

Enter number of alternate cylinders[2]:

Enter number of physical cylinders[6144]:

Enter number of heads: 16

Enter number of data sectors/track: 64

Enter rpm of drive[3600]:

Enter format time[default]:

Enter cylinder skew[default]:

Enter track skew[default]:

Enter tracks per zone[default]:

Enter alternate tracks[default]:

Enter alternate sectors[default]:

Enter cache control[default]:

Enter prefetch threshold[default]:

Enter minimum prefetch[default]:

Enter maximum prefetch[default]:

Enter disk type name (remember quotes): "qd"

selecting c1d3

No defect list found

[disk formatted, no defect list found]

format> label

Ready to label disk, continue? y

format>



# Contacting Platypus Technology

If you have tried the solutions recommended in this manual and are still experiencing problems with your *Qik*DRIVE, please contact Platypus Technology Technical Support using the contact details below.

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