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

## User Guide

P/N: UI01001999 Rev. D

# Statutory Compliances

This product complies with EMC and immunity standards, for the USA (FCC), the European Economic Community (CE) and Australia (C-Tick).

 **N10339**

The product described by this manual complies with the C Tick class B.

**FC**

The product described by this manual complies with the FCC Rules Part 15 class B. Assessment of compliance of the product with the requirement relating to electrical equipment was performed based on the following standards:

> CISPR 22: 1997

Operation is subject to the following conditions:
- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation.

**CE**

The product described by this manual complies with the essential protection requirements of Council Directive 89/336/EEC and it amendments on the approximation of the laws of the Member States relating to electromagnetic compatibility. Assessment of compliance was based on the following standards: EN55022 and EN50082.1

# Product Use

Platypus Technology Holdings Ltd products are not intended for use in medical, life saving or life sustaining applications.

# Contents

# Introduction

Thank you for purchasing a *Qik*DRIVE or *Qik*CACHE PCI card. From this point on the *Qik*CACHE will be referred as a *Qik*DRIVE as installation instructions are the same for both products. The only difference being that the *Qik*CACHE does not have secondary power support for retaining information. If you have purchased a *Qik*CACHE, ignore references to secondary power.

This manual will lead you through the process of installing the *Qik*DRIVE. If you do not have any prior experience installing computer hardware, you might prefer to have a computer technician perform the task for you.

The *Qik*DRIVE is a PCI bus add-in card that operates as a very fast Solid State disk drive. The *Qik*DRIVE connects to your PC via a PCI slot and the *Qik*DRIVE is seen by the system as a standard hard disk drive when the card and device driver are installed. The *Qik*DRIVE can be partitioned, formatted and managed in the same way as traditional drives.

The *Qik*DRIVE can be shipped with up to 8GB of storage capacity. The 168 pin DIMMs used on the *Qik*DRIVE are manufactured to meet exacting specifications and quality standards set by Platypus Technology.

*Qik*DRIVE2          *Qik*DRIVE8          *Qik*DRIVE8 with ISA Extender

# Hardware and Software Introduction

Both long and short PCI card versions of the *Qik*DRIVE are available, depending on the storage capacity you require. Each *Qik*DRIVE will be equipped with the memory capacity you requested at time of purchase pre-installed and tested. To install the *Qik*DRIVE you simply insert the card into a vacant PCI socket, connect the DC jack from the inline power adapter and load the software driver (as explained later in the software installation).

The *Qik*DRIVE comes with software drivers that must be installed correctly depending on the specific operating system running on the host system.

# Using the *Qik*DRIVE

The *Qik*DRIVE is designed to remove the performance bottle necks caused by slow storage systems. The *Qik*DRIVE can be used to improve the efficiency and hence performance of both the operating system and applications.

Operating system performance can be greatly improved by using the *Qik*DRIVE as a high-speed virtual memory swap space. In normal operation the operating system will swap data between physical and virtual memory (a temporary paging file on the server's disk) as memory demand changes. If the *Qik*DRIVE is used to store this virtual memory or temporary paging file, the performance penalty associated with the paging process can be greatly reduced, minimising the effects of thrashing.

Applications such as databases also move data between physical memory and caches on the server's disk. Moving these caches from mechanical drives and placing them on the *Qik*DRIVE will also greatly improve performance in I/O bound systems.

# Volatility of DRAM Storage

All systems that use DRAM as a method of data storage will only retain data while the power to the DRAM is maintained. When this is understood and the DRAM is used in a fashion that eliminates this as an operational issue, DRAM will deliver exceptional reliability. A good example of this is the DRAM used as the main memory in PCs. Statistics from PC manufacturers show that the DRAM is one of the least likely components to fail in a PC. On the other hand mechanical storage devices are amongst the most likely to fail.

The *Qik*DRIVE is a storage device that is designed to offer both reliability and extreme performance. The *Qik*DRIVE is not designed for use as a data archiving device. The *Qik*DRIVE is designed to operate in environments where data needs to be accessed constantly and quickly, for example database log files.

# Software Compatibility

The *Qik*DRIVE is designed to operate with any system incorporating a PCI bus and running Windows 95, 98, NT4.0, Windows 2000 and Linux. The *Qik*DRIVE supports Fat 16 and NTFS file systems.

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

[www.platypus.net](www.platypus.net)

# PCI Mechanical Compatibility

The *Qik*DRIVE is designed to install into systems that provide free PCI expansion slots. The *Qik*DRIVE is a 32-bit 33MHz PCI Card.

# Hardware Installation

**IMPORTANT:** Read this entire chapter carefully before installing the *Qik*DRIVE, only then follow the directions carefully to protect yourself and your equipment.

## Organising Materials

1.  Make sure the following items were included in your *Qik*DRIVE package. In the occurrence of missing components, contact your reseller or Platypus Technology technical support as described on page 27.
    *   *Qik*DRIVE adapter with DIMM modules installed.
    *   In-Line power adapter suitable for your local wall outlets
    *   This manual
    *   Warranty provisions card
    *   *Qik*DRIVE Installation CD
    *   Anti-static wrist strap

2.  Gather together the following items:
    *   Your complete computer system.
    *   A felt-tip pen.
    *   The manuals for your computer and its components; you may need to refer to them during the installation.
    *   Tools appropriate for removing your computer's cover and installing the *Qik*DRIVE, such as screwdrivers.

**WARNING:** Make sure none of your tools are magnetised since magnetised tools can damage computer equipment.

# Save Software

1. Create back-up copies of all the software and data on your system.

2. If you plan to add any other peripherals or software, wait until after your *Qik*DRIVE upgrade is running properly before installing them.

# Disconnect Computer

1. Turn your computer off.

2. Disconnect the power to your computer by removing the power cable from the rear of the computer.

# Anti-static strap

Electronic equipment can be damaged by static discharge. To minimise the chance of a static discharge occurring during the *Qik*DRIVE installation process, we recommend that you wear the anti static wrist strap shipped with the *Qik*DRIVE. The free end of the cable connected to the wrist strap and all equipment being worked on should be grounded properly. Power should be removed from all equipment being worked on.

**WARNING:** The supplied Wrist Strap is for static control only - it will not increase nor decrease your risk of receiving electric shock when using or working on electrical equipment.

Adjust the anti static wrist strap to fit firmly

Earth the anti static wrist strap lead to the computer
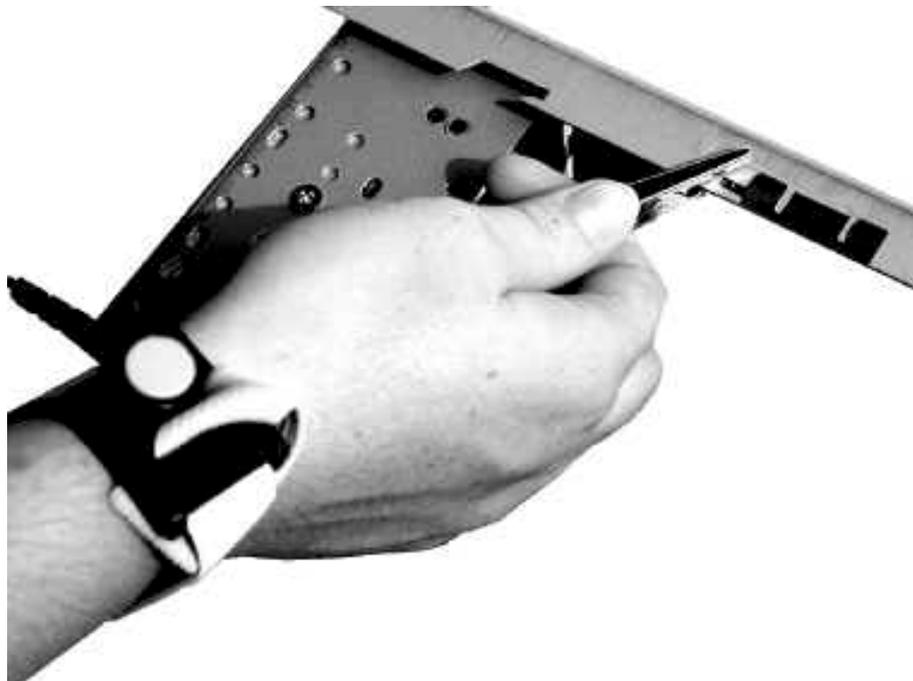
# Remove Computer Cover

Remove your computer cover as described in your computer manual. If your computer manual does not have instructions for removing the cover, then:

1. Gather the appropriate tools. Depending on your computer, you may need a Phillips head screwdriver, a slotted screwdriver or a socket set.

2. Remove the screws that attach the cover to the frame (they are usually located around the perimeter of the rear panel). Set the screws aside (it is advised that you store them in a suitable receptacle such as a cup).

3. Remove the cover and set it aside. Never force the cover, if something is obstructing its removal, check to see that you have removed all the screws. It may also be necessary to remove the front panel, depending on the design of your computer.

# Inserting the *Qik*DRIVE

The *Qik*DRIVE occupies a single 32 bit PCI slot and can fit into a short card space.

1. Carefully open the computer case to expose the PCI expansion slots.

2. Locate an unused (32-bit) PCI slot.

3. Install the *Qik*DRIVE card into the PCI slot and secure the card bracket to the bulkhead with the bracket retaining screw.

# Identifying PCI slots and mounting points



Card Bracket retaining screw

Card Bracket slot cover

Removable retaining screw and Card Bracket slot cover

Installed PCI card

Free PCI slots
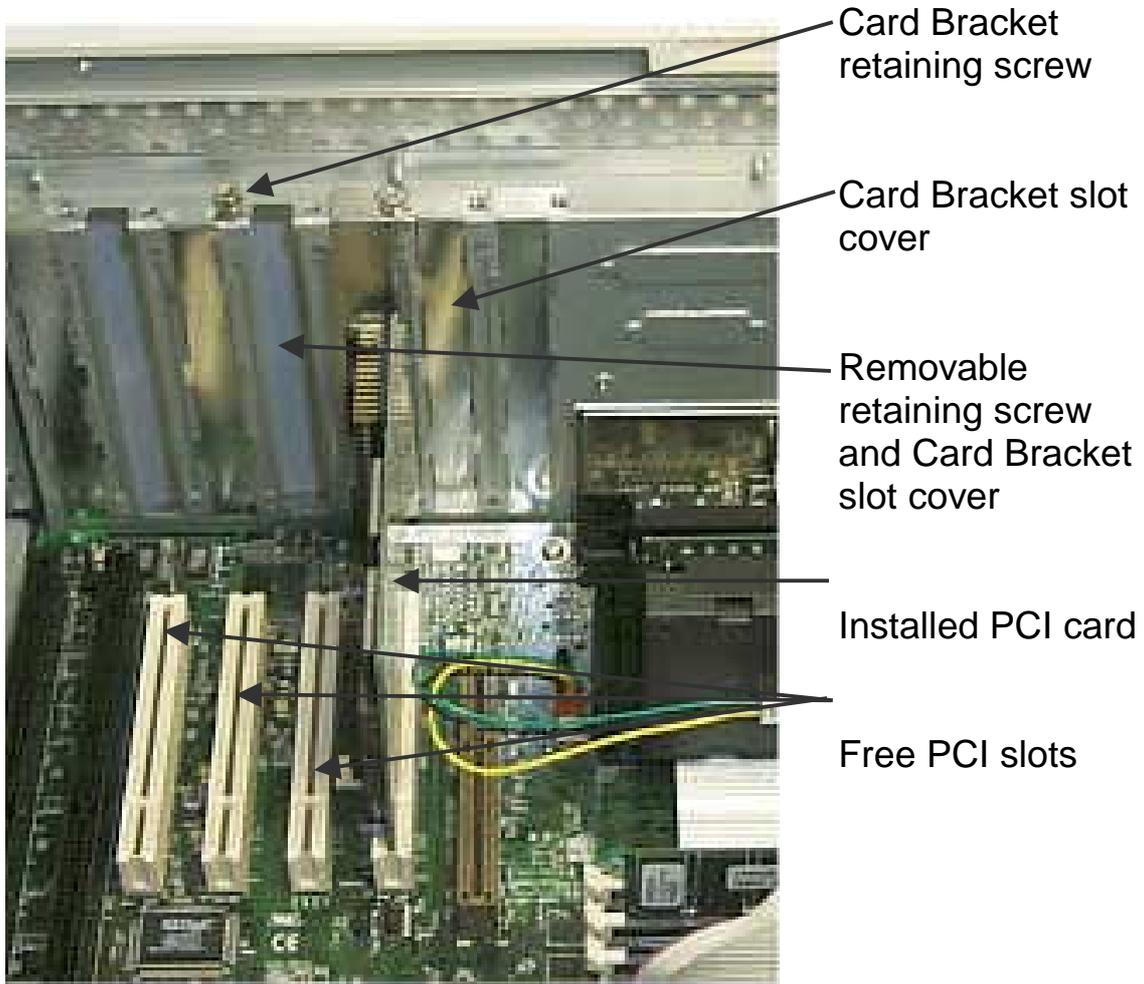
## ISA Extender Bracket

The *Qik*DRIVE is fitted with an ISA Extender Bracket. This bracket can be removed to leave the standard PCI Bracket, where a standard PCI slot is available.

### *Qik*DRIVE8 with ISA Extender Bracket



ISA
Extender
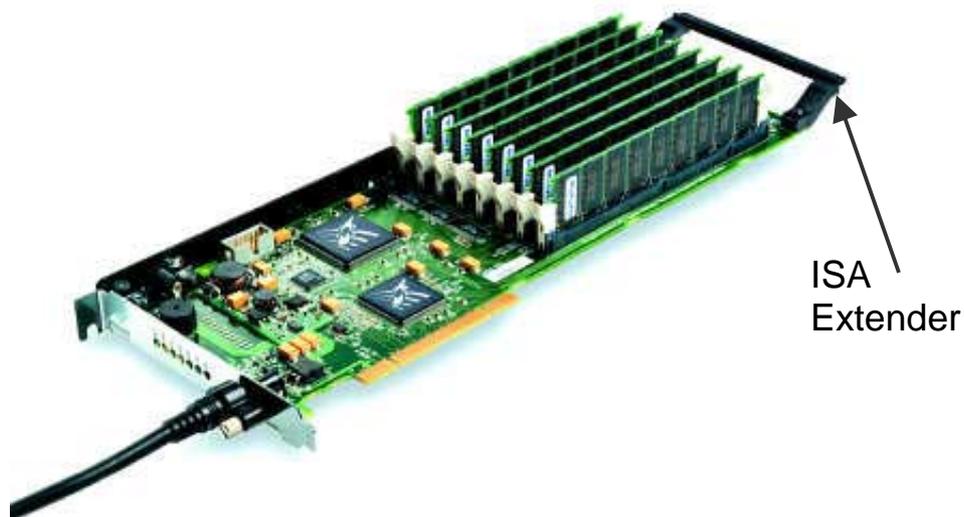
### *Qik*DRIVE8 with ISA Extender Bracket removed
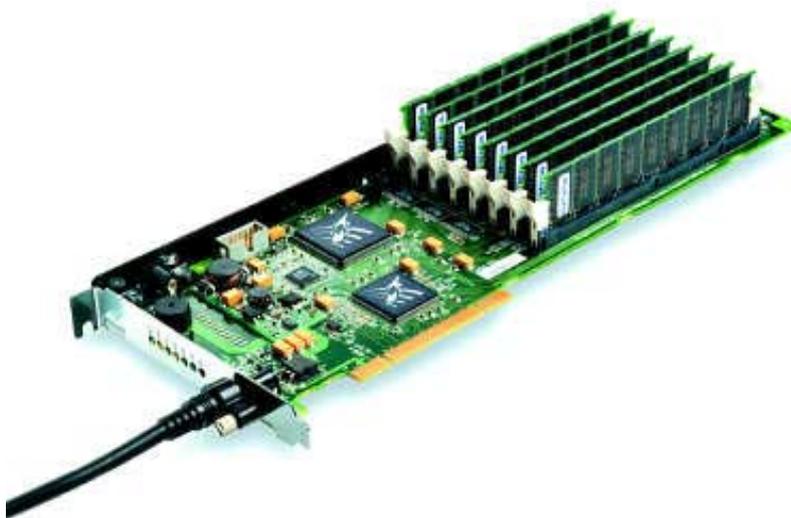
# Connecting the Power Adapter

The *Qik*DRIVE is supplied with an in-line power adapter. This adapter maintains data on the *Qik*DRIVE while the computer is switched off. Follow the instructions below to install the AC adapter.

Before connecting the in-line power adapter to the *Qik*DRIVE, ensure it is not plugged into the wall outlet. Insert the DC jack of the in-line power adapter into the DC socket located below the LEDs on the card bracket of the *Qik*DRIVE. Align the DC jack-retaining bolt with the threaded nut (located below the DC socket on the *Qik*DRIVE card bracket) and tighten with the fingers. This socket will be visible at the back of the computer. Insert the mains cable of the in-line power adapter into the wall outlet and turn on the power. The SP LED will come on.

# DC Plug Retainer



DC Socket

DC Jack

DC Jack
retaining bolt
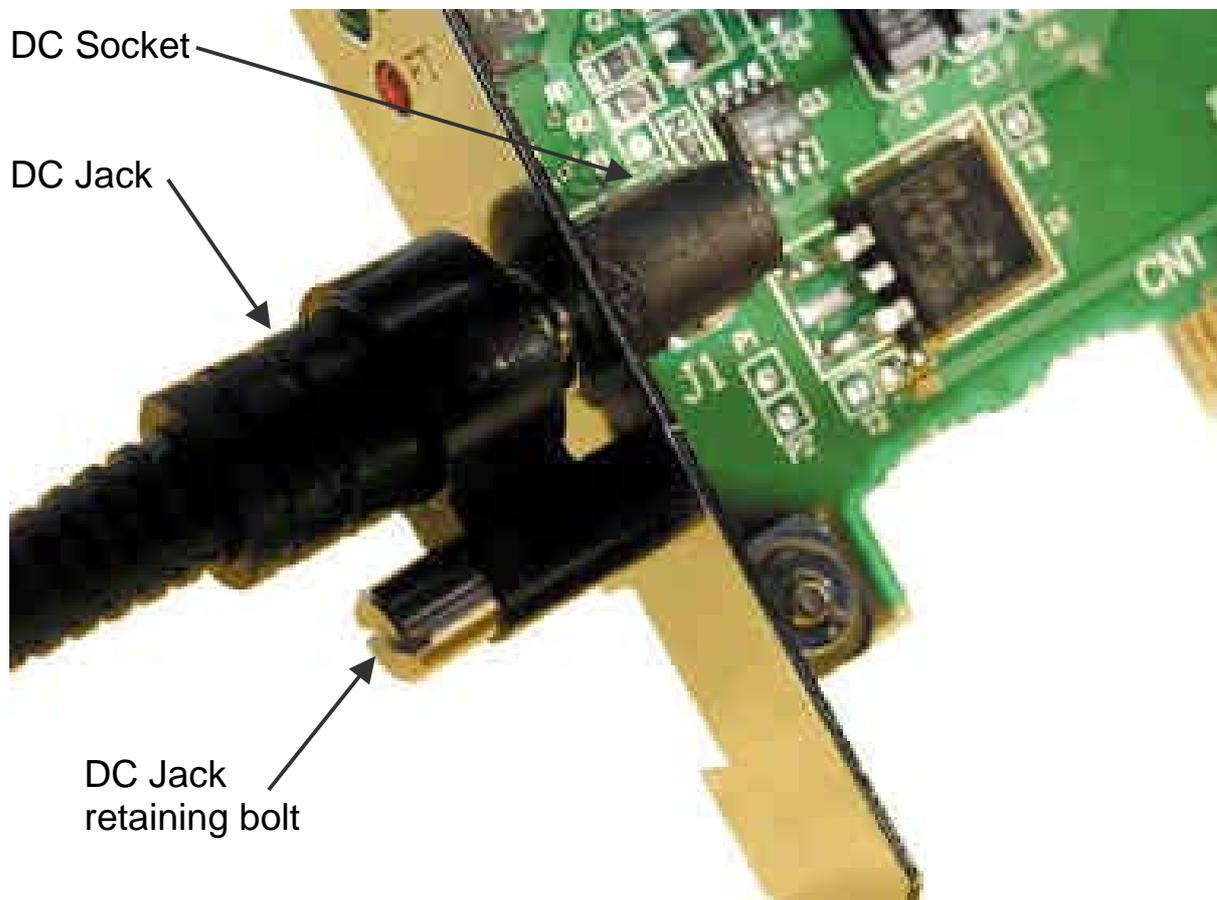
# In-line power adapter supplied with *Qik*DRIVE.



## Mains Cable

# Finishing the Hardware Installation

1.  Replace any cards, cables or brackets you removed during the installation.

2.  Replace the system cover.

3.  Reconnect any cables that you disconnected before the installation.

4.  Turn your computer on.

5.  Verify that the operating system loads and that system operation is normal.

# Status indicators

The *Qik*DRIVE has seven LEDs located on the Card Bracket. These LEDs are visible at the rear of the computer when the card is installed.  The function of each LED is detailed below:

| LED Label | LED Colour | LED Title | Description |
| --- | --- | --- | --- |
| RD | Green | Read | Flashes On during Burst Read. |
| WR | Yellow | Write | Flashes On during Burst Write. |
| EC | Green | ECC | Lit when ECC checking is enabled. |
| SB | Yellow | Stand-by | Flashes when main power is lost and Secondary Power is being used.  While SB is flashing the card is in standby mode.  In Standby mode the card will also give an audible beep every 60 seconds if the  speaker is enabled. |
| SP | Green | Secondary Power | This is On when Secondary Power is available. |
| OL | Green | On Line | This is On once the device driver is loaded. |
| AT | Red | Attention | During initialisation AT is On until the driver is loaded.  At other times this indicates a fault condition when on. |

**Note**:     Stand-by refers to the *Qik*DRIVE receiving power from the in-line power adapter or the external UPS (optional) while the system it is installed into is switched off.

# Memory Upgrade

DO NOT install additional DIMMs unless they are the correct parts ordered from Platypus Technology. Any non-Platypus Technology components added will not be subject to the *Qik*DRIVE warranty provisions.

The DIMM modules shipped on each *Qik*DRIVE by Platypus Technology are manufactured to a strict set of specifications and quality guidelines. Operation of the *Qik*DRIVE can only be guaranteed if DIMM modules supplied by Platypus Technology are used. If in doubt, consult with your nearest Platypus Technology Reseller or contact Platypus Technology directly.

# Using the *Qik*DRIVE to store Virtual Memory

To achieve improved performance from systems running Microsoft operating systems you can configure the operating system to store its virtual memory on a *Qik*DRIVE. This will result in the operating system and applications running at a much faster rate, as they are no longer being slowed by the hard disk performance bottleneck.

We recommend that a dedicated volume be created on the *Qik*DRIVE for virtual memory usage. The minimum amount of virtual memory should be at least 2.0 times the amount of RAM in the system. Set the maximum amount of virtual memory to the total amount of free storage on the volume you dedicated for virtual memory storage.

**Note**:    The *Qik*DRIVE must be installed before the virtual memory is set. You must select the *Qik*DRIVE in the *Virtual Memory, Drive* window before making any changes to the Paging File Size. Accidentally changing the Paging File Size of your HDD can create problems with the operating system and applications.

Adding another additional drive to your system may cause a change in the drive letter used for the *Qik*DRIVE. Check that the Virtual Memory is set up correctly after adding an additional drive.

## Windows 95

In the control panel click open the **System** icon. This will open a window titled **System Properties**. In the **System Properties** window there are tabs along the top of the window, select the tab called **Performance**. Your display should now show the **Performance Status** and the **Advanced Settings** options. In the **Advanced Settings** area select the <**Virtual Memory**> button to display the **Virtual Memory** window.

**Note**:   Make sure you read and properly understand all warnings, as incorrectly setting Virtual Memory can cause problems.

To move virtual memory from C:/ to the *Qik*DRIVE you will need to select the option called **let me specify my own virtual memory settings**.  Selection of this option enables the rest of the options on the menu.  The options available include selection of the Hard Disk, Minimum and Maximum amount of virtual memory and an option to disable the virtual memory.  To change the hard disk from the C:/ to the *Qik*DRIVE, use the down arrow in this field and select the appropriate drive.  Set the **Minimum** and **Maximum** size you want on the *Qik*DRIVE.

## Windows NT

To set virtual memory in Windows NT4.0, go to the control panel and open the system icon by clicking on it.  This will open a window titled **System Properties**.  In the **System Properties** window there are tabs up along the top of the window, select the tab called **Performance**.  There will be an area called **Virtual Memory** with a <**Change**> button.  Select this button to display options to select the Drive, initial size and maximum size for virtual memory.

## Windows 2000

To set virtual memory in Windows 2000, go to the control panel and open the system icon by clicking on it.  This will open a window titled **System Properties**.  In the **System Properties** window there are tabs along the top of the window, select the tab called **Advanced**.  Click the button called <**Performance Options**> and you will see the Virtual Memory section.  Select the <**Change**> button.  A new window will open with the options to change the Drive, Initial Size and Maximum Size.  Set the appropriate details for your *Qik*DRIVE and use the <**Set**> button to confirm the changes.

# Configuration

## Bus Mastering DMA

In certain machines, BIOS settings may provoke an "unknown state" where the system does not recognise the *Qik*DRIVE8 as hardware.  This is a simple problem that can be easily solved using the following steps:

1.  Reboot the computer and enter the BIOS set-up screen.

2.  Find 'Bus Mastering' in the 'PCI Configuration' screen.

3.  Change Bus Mastering to 'Enabled'.

4.  Save settings and restart the computer.

**Note**:     There will be slight variations to these instructions depending on the BIOS version.

## Plug and Play Settings

Occasionally in Windows 2000, the system fails to boot after installation of the *Qik*DRIVE.  This can be solved using the following procedures:

1.  Reboot the computer and enter the BIOS set-up screen.

2.  Find the 'Plug and Play' operating system.

3.  Change Plug and Play to 'No'.

4.  Find 'Reset Plug and Play Data'.

5.  Change Reset Plug and Play Data to 'No'.

6.  Save settings and restart the computer.

**Note**:     There will be slight variations to these instructions depending on the BIOS version.

# Fragmentation

*Qik*DRIVE performance is not affected by fragmentation as the *Qik*DRIVE contains blocks, which are accessed via addresses. The *Qik*DRIVE can access every block at the same speed in any sequence, unlike the mechanical hard disk drive, which uses mechanical heads.

# *Qik*DRIVE Block Transferral System

The *Qik*DRIVE uses blocks where the mechanical hard disk drive would use sectors. These blocks are transferred to and from the *Qik*DRIVE. The standard block size is 512 bytes – this is set by the operating system.

The transfer of blocks has associated overheads – set-up overheads and transfer overheads. Joining blocks and sending them as one group eliminates most of the transfer overheads, thus joined blocks can be transferred much faster than separately transferred blocks.

Windows NT supports a wide range of transfer block sizes exceeding 100K in size, providing excellent I/O performance, whereas Linux only supports 2K or 4K transfer blocks (4 x 512-byte or 8 x 512-byte) thus limiting I/O performance.

# Additional Cooling

*Qik*DRIVE products require no additional cooling. Extensive testing has been carried out in "still, air-sealed" systems with no excessive heat being observed.

# Software Installation

For software installation details please see the appropriate Operating System *Qik*DRIVE installation instructions.

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

[www.platypus.net](www.platypus.net)

From this URL select **Support** and then select **Software Archive** to find the latest drivers.  If you experience any difficulty, contact Platypus Technology technical support as described on page 27.

# Technical Specifications

## *Qik*DRIVE8

### Mechanical Specifications
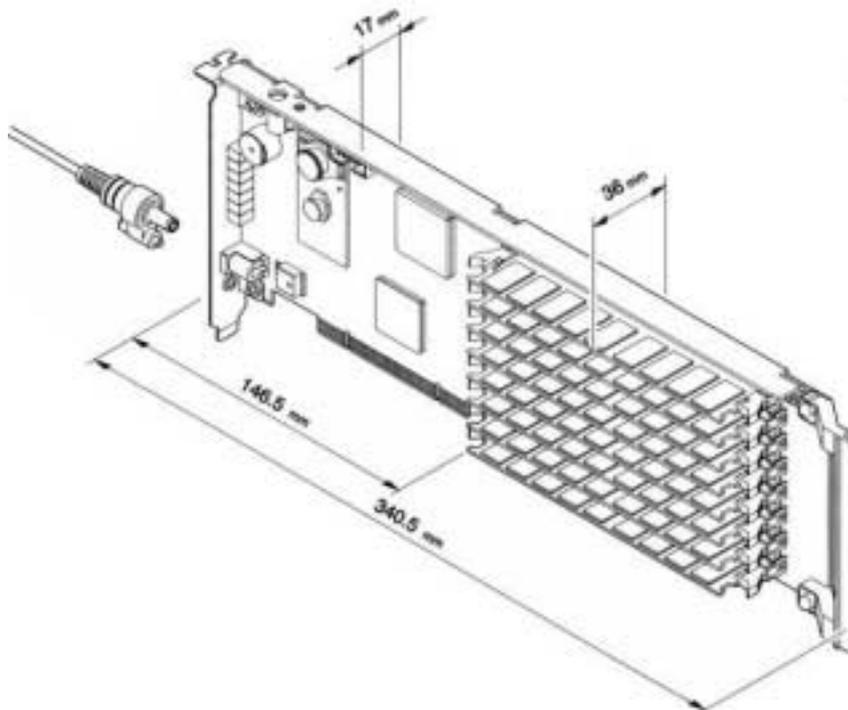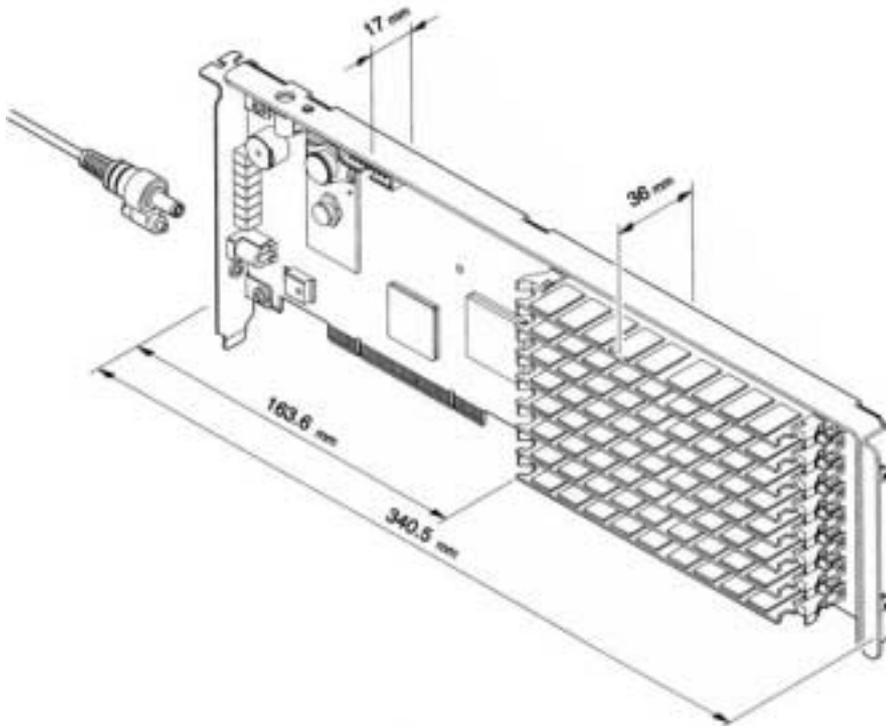
## Electrical Specifications

Maximum current usage = 2A @ 5V

| State | Description | Current |
|---|---|---|
| Idle | No work being performed by *Q*D8 | 820mA |
| Formatting | FAT32 Formatting of *Q*D8 | 2250mA (max) |
| Work | 16Kb transfers, 50% read, 50% write | 1720mA (max) |

## PCI Specifications

Complies with PCI Revision 2.2.

# *Qik*DRIVE2

## Mechanical Specifications
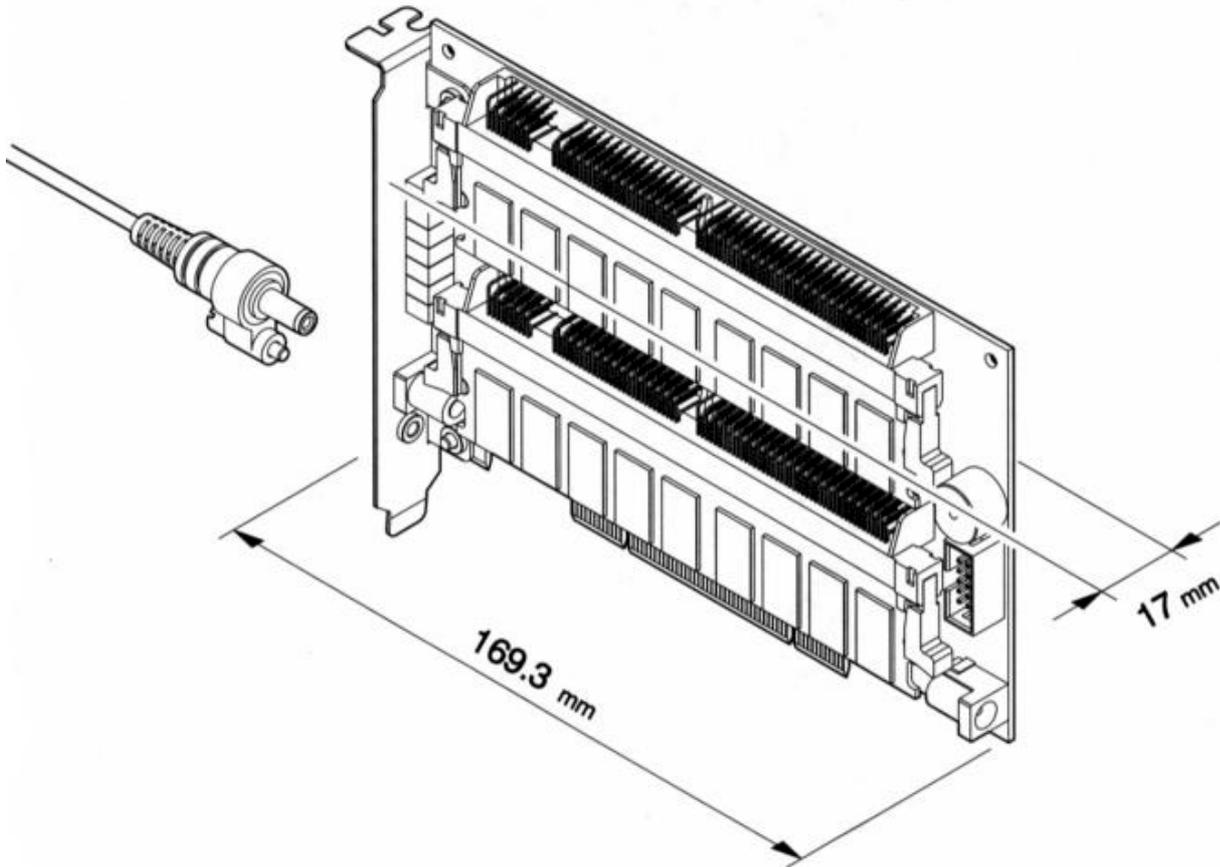


## Electrical Specifications

Maximum current usage = 2A @ 5V

| State | Description | Current |
|---|---|---|
| Idle | No work being performed by *Q*D2 | 330mA |
| Formatting | FAT32 Formatting of *Q*D2 | 1100mA (max) |
| Work | 16Kb transfers, 50% read, 50% write | 820mA (max) |

## PCI Specifications

Complies with PCI Revision 2.2.

# One Year Limited Warranty

Platypus Technology International Holdings Ltd. warrants that the *Qik*DRIVE, if properly installed and used, will be free from defects in material and workmanship and will substantially conform to Platypus Technology Holdings Ltd's published specifications for a period of one (1) year from the date of purchase.

If the *Qik*DRIVE, which is the subject of this Limited Warranty, fails during the warranty period for reasons covered by this Limited Warranty, Platypus Technology Holdings Ltd, at its option, will:

**REPAIR** the *Qik*DRIVE by means of hardware and/or software,

**OR**

**REPLACE** the *Qik*DRIVE with another *Qik*DRIVE.

Platypus Technology Holdings Ltd does not warrant that the *Qik*DRIVE will be free from design defects.

This limited warranty does not cover any costs relating to removal or replacement of a *Qik*DRIVE.

This limited warranty does not cover damages due to external causes, including accident, problems with electrical power, usage not in accordance with product instructions, misuse, neglect, alteration, repair, improper installation or improper testing.

# Warranty Limitations and Exclusions

These warranties replace all other warranties, express or implied including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Platypus Technology Holdings Ltd disclaims all other warranties, express or implied including, without limitation, implied warranties of merchantability and fitness for a particular purpose. Some jurisdictions do not allow the exclusion of implied warranties therefore, this limitation may not apply to you.

All express and implied warranties are limited in duration to the limited warranty period. No warranties apply after that period. Some jurisdictions do not allow limitations on how long an implied warranty lasts therefore, this limitation may not apply to you.

# Limitations of Liability

Platypus Technology Holdings Ltd and its subsidiaries responsibility under this, or any other warranty, implied or express, is limited to repair, replacement or refund, as set forth above. These remedies are the sole and exclusive remedies for any breach of warranty. Platypus Technology Holdings Ltd and it's subsidiaries are not responsible for direct, special, incidental, or consequential damages resulting from any breach of warranty or under any other legal theory including, but not limited to, lost profits, downtime, goodwill, damage to or replacement of equipment and property, and costs of recovering, reprogramming, or reproducing any program or data stored in or used with a system containing your QikDRIVE. Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages therefore, the above limitations or exclusions may not apply to you.

# Warranty on Replacement Product

Replacement product is warranted under this written warranty and is subject to the same limitations and exclusions for the remainder of the original warranty period.

# 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.

## Contact Via Internet

www.platypus.net

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