QikDATA maximizes database application performance, with complete data redundancy.

Key Features

- **Extreme speed**
  Provides up to 40,000 I/O transactions per second, 350 Mbps data transfer rates and seek time at less than 0.1 ms.

- **Data redundancy**
  Has HDD and battery backup and is configurable to ensure no single point of failure.

- **Scalable to 128GB per PCI slot**
  Is expandible to accommodate future growth in system capacity needs.

- **Simple integration**
  Has standard 1RU rack and PCI card installation. Can be formatted, partitioned or spanned as a standard HDD.

- **Easily serviceable**
  Components are easily accessed for upgrades and part replacement.

- **Operating Systems supported include:**
  - Compaq® Tru64®
  - HP UX®
  - MS® Windows 2000® & NT 4.0®
  - Linux®
  - Sun® Solaris®
  - Visit www.platypus.net for full listing of current versions

Time is money

QikDATA storage products increase the speed of under-performing business critical applications, enabling them to cope with peak periods and organizational growth.

Regardless of the host machine’s processing power, database, email, accounting, e-commerce and decision support applications are often limited by the speed of their existing storage system.

Data bottlenecks removed

QikDATA removes I/O bottlenecks caused by the limited speed of hard disk drive (HDD) based storage systems.

It also enables users to take advantage of the ever decreasing price of DRAM.

Utilizing the native speed of DRAM, QikDATA provides a storage alternative with dramatically faster data transfer. Data is stored upon SDRAM rather than rotating platters. Therefore transfer is not only faster, but also without the risks such as “crashing” that are associated with moving, mechanical parts.

Maximum data redundancy

QikDATA has been designed to host the most sensitive of data and offers maximum data redundancy. In the event of an external power loss, QikDATA archives data to mirrored, removable 2.5” IDE drives. Once external power is re-established, data is intelligently retrieved from the HDD archive and transferred back to the DRAM storage array.

Install now, scale later

QikDATA products can grow with your needs. With up to sixteen memory slots per unit, upgrading is as easy as inserting more Platypus DIMMs into the vacant slots.

As data needs continue to grow, additional QikDATAs can be added to each PCI card. A host machine with multiple PCI slots can support numerous 128GB QikDATA configurations, creating a large, high speed, storage system.

A competitive choice

Installing a QikDATA is an economical option that maximizes existing system infrastructure and capacity without increasing floor space requirements, system complexity, processor-based software licence fees, and administration costs.

Transferring highly accessed files, temporary files or entire I/O bound applications to a QikDATA can make the difference between a competitive system, and one that isn’t.
**QikDATA Features**

Every feature of QikDATA has been designed with two overriding priorities:

1. **Performance**
   QikDATA introduces a new level of storage performance with features including:
   - **SDRAM storage**
     Data is continually accessed from SDRAM storage rather than rotating mechanical HDD platters.
   - **PCI connection**
     By directly connecting to the host machine’s 66MHz/64bit PCI slot, QikDATA performance is not limited by SCSI interface speeds.
   - **One-way connectors**
     High speed connectors maintain optimized data throughput speeds.

2. **Data protection**
   QikDATA maximizes data security by offering multiple levels of data redundancy, including:
   - **Mirrored HDD backup**
     Ensuring multiple archived copies of the data.
   - **Two internal UPSs**
     If external power is lost, data is automatically transferred from SDRAM storage to HDD archive. Each UPS battery unit has enough stored power for several consecutive archiving processes, and is recharged during operation.
   - **Background diagnostics**
     The operational status of selected components such as the four back-up HDDs is continually monitored.

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**QikSPY**

Application bottleneck diagnostic software

QikSPY diagnostic software was developed by Platypus Technology to assist customers in discovering exactly why and where their application servers are not performing to peak potential.

QikSPY software determines whether performance bottlenecks are caused by one of two things... processors or storage.

QikSPY does this by identifying:
- CPU usage
- Bytes read/written to local drives
- Most highly accessed files.

QikSPY monitors system I/O activity non-intrusively on any server. Every five seconds, “snapshots” of performance data are taken and logged in a file which is returned to Platypus.

Based on the log file’s data, Platypus then provides a written “QikSPY Analysis Report.” This report includes findings and recommendations such as which files are prime targets for being transferred to a much faster storage alternative.

“QikSPY Analysis Reports” are completely confidential, and supplied under customer’s NDA if requested.

QikSPY software is offered to qualified customers with Platypus Technology’s compliments.

A sample “QikSPY Analysis Report” can be downloaded from Platypus’ web site at www.platypus.net
Configuration Alternatives

1. QikDATA Spanned

Regardless of configuration, all QikDATA storage systems back-up data from the DRAM storage area onto dual HDDs in the event of external power loss.

Of the various configuration options, one of the most common is to span both of QikDATA's independent sub-systems to form a larger, single drive.

This QikDATA option provides the following level of data security:
- 2 back-up copies of data
- 3 independent power sources
- 1 data path.

When using this alternative, a single PCI adapter card directly connects the QikDATA chassis to the host machine.

From each PCI adapter card, multiple QikDATAs can be added to form a single spanned storage drive of up to 128GB.

Multiple 128GB configurations can be spanned to create a larger high speed storage drive.

2. QikDATA Mirrored

For maximum data redundancy, QikDATA can be configured with no single point of failure.

This is done by configuring the unit as a fully duplexed RAID1 (mirrored) system. Here, data is mirrored across the two independent DRAM storage subsystems.

If external power is lost, data is backed-up from DRAM to each subsystem's mirrored HDDs.

QikDATA storage with this increased level of data redundancy is highly scalable, and requires dual Platypus PCI adapter cards.

This QikDATA option provides the following level of data security:
- 4 back-up copies of data
- 6 independent power sources
- 2 independent data paths.

QikDATA Upgrades

All Platypus products are expandible to accommodate future growth and system needs.

Storage capacity can be increased by simply installing additional SDRAM DIMMs, or by spanning together multiple units using standard OS tools (as you would a standard HDD-based system).

When a Platypus storage product is ordered, it is shipped pre-configured, that is, with its memory installed.

Customers are able to nominate the use of either 512MB or 1GB capacity DIMMs. While it is cheaper to configure Platypus products using 512MB DIMMs, using the smaller capacity option will fill up a larger number of available slots.

Memory Specifications

All Platypus products use the same detailed memory specifications.

The DIMM modules shipped on each Platypus product are manufactured to a strict set of specifications and quality guidelines. Every module is vigorously tested before being installed into a Platypus product, and again after installation.

Perhaps more importantly, Platypus provides the maximum possible performance and features by using very specific memory.

Due to Platypus’ purchasing power, upgrade pricing is extremely competitive.

The Platypus support team can be contacted via support@platypus.net to assist with any further queries about Platypus memory upgrades.
Case Study: Cost Impact on Email Server Farm

**EXISTING SCENARIO**

6 Email servers (3 redundant pairs)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Per Pair</th>
<th>Per Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emails per second</td>
<td>40 [peak]</td>
<td>3,000,000 [approx]</td>
</tr>
<tr>
<td>H/W investment</td>
<td>$60k</td>
<td></td>
</tr>
</tbody>
</table>

**Diagnosis**

Email queue throughput is limited by the speed of H/D I/O reads/writes

**Requirements**

240 Emails per second [overall minimum]

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**OPTION A**

Install additional 6 redundant server pairs. Total = 12 servers

Option A - Add 6 redundant servers
- Total of 12 servers
- $120k
- [plus substantial admin costs]

Expected result - 240 Emails per second [peak]

Total H/W cost - 12 servers @ $10k = $120k

**OPTION B**

Install Qik QDATA storage to 1 redundant server pair

Option B - Attach Qik QDATA storage
- Transfer email queue to Qik QDATA
- Redeploy 4 servers elsewhere

Actual result - 1,200 Emails per second

Total H/W cost - 2 servers @ $10k + 2 x 8GB Qik QDATA = $69k

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**The Result**

Customer installed Option B, delivering the performance of 60 servers, worth $600k.

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**Qik QDATAL Performance Storage System**

**I/O Transactions per second**

The diagram above shows that Qik QDATAL completes 24 I/O events significantly faster than mechanical HDDs. The speed with which the Qik QDATAL accomplishes an I/O event builds additional capacity into a storage system. Qik QDATAL allows hundreds of additional requests to be streamed to a storage device, and the speed of the spinning magnetic platter, HDDs are limited in their ability to stream data by both the speed of the spinning magnetic platter, and the need of the HDD controller to verify that each write has been accepted. Qik QDATAL allows hundreds of additional requests to be completed in a fraction of the time that a HDD could satisfy just one request.

**Storage Access Speed**

The access speed to data is dramatically faster when using Qik QDATAL as storage. Traditionally, milliseconds (ms/1/1000) are used when measuring HDD access speed. This represents the time taken for the storage array to locate the start address of the data block(s) requested. Qik QDATAL systems measure access times in microseconds (µs/1/1,000,000). This is because there can be hundreds of access requests for a single sector such as generating a database report.

**Data Streaming Speed**

The streaming speed represents how much data can be read from, or written to, a storage media. This is generally measured in MB/sec.

HDDs are limited in their ability to stream data by both the speed of the spinning magnetic platter, and the need of the HDD controller to verify that each write has been accepted. Silicon (DRAM) based storage can stream data almost instantaneously, with the ability to achieve sustained rates exceeding 1,000MB/sec.

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**Specifications**

**Qik QDATAL PCI Card**

- Form Factor: PCI short card
- Bus Architecture: 64-bit PCI
- Capacity: N/A

**Qik QDATAL Installed Memory**

- Error Correction Code (ECC)
- PC100, unbuffered SDRAM
- 66 MHz DRAM

**PERFORMANCE**

- Access Time (microseconds): 25 - 50
- Transactions per second: Up to 40,000 (2k)
- Data Transfer Rates (MB/Sec): 350 (sustained)

**SOFTWARE**

- Drivers: HP UX, Linux, MS Win., NT 4.0
  - Sun Solaris, Compaq Tru64 (see web for updates)

**POWER REQUIREMENTS**

- Primary Source: External source
- Backup: Internal UPS (Qty = 2)
- Maximum Power Consumption: 70 watts
- Voltage: 100/240V AC, 50/60Hz

**DATA PROTECTION**

- Archive HDDs: EIDE (Qty = 4)
- Internal UPS: 12V SLA batteries (Qty = 4)
- Battery features: 240V detection, 12V kill cct with auto on when mains detected, battery condition test
- Battery recharging: Floating trickle
- Number of Fans: 8

**WARRANTY**

- Time Period: Twelve months (return to base)
- Support: Telephone, internet, onsite (optional)

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