

PROMISE
TECHNOLOGY, INC.

SUPERSWAP 1000™

USER MANUAL

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IMPORTANT DATA PROTECTION INFORMATION

You should back up all data before installing any drive controller or storage peripheral. Promise Technology is not responsible for any loss of data resulting from the use, disuse or misuse of this or any other Promise Technology product.

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RADIO FREQUENCY INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult Promise Technology, Inc. or an experienced radio/TV technician for help.

This device complies with Part 5 of the FCC Rules. Operation is subject to the following conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



Note

Only digital device equipment CERTIFIED CLASS B should be attached to this equipment and that must have shielded cables.

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INTRODUCTION

PROMISE TECHNOLOGY, INC.

Promise Technology, Inc. was founded in San Jose, California in 1988 and established a proven track record for leading edge storage controller products. With an innovative product line, the company has pioneered ATA RAID storage, allowing users to configure RAID arrays using low-cost Ultra ATA drives. Promise Technology was the first to introduce caching controllers to MFM, and then IDE drives, first to fully support Ultra ATA/33/66 and Ultra ATA/100 drives, and the first to develop a RAID 0,1 card for Ultra ATA drives.

SUPERSWAP 1000

Thank you for purchasing Promise Technology's SuperSwap 1000. The SuperSwap 1000 drive housing installs easily into any 5.25" component bay in your personal computer or workstation. SuperSwap 1000's drive carrier and housing extend the data storage capabilities of your system by allowing you to easily swap most 3.5" form factor ATA hard drives in and out of your computer, without the hassle of opening and closing your computer's cabinet. SuperSwap 1000 accepts Ultra ATA drives. When used with Promise Technology's ATA RAID 1, 3, or 5 products¹, SuperSwap 1000 allows users to "hot swap" a failed drive without powering down a system while fully protecting hard drive and internal system components.

SPECIFICATIONS

INTERFACE

- Fits most 3.5" form factor ATA hard disk drives
- Standard ATA/IDE interface
- Supports Ultra ATA/133, Ultra ATA/100, Ultra ATA/66, and Ultra ATA/33 drives
- Built-in Power and Drive Activity LED indicators

HOUSING ASSEMBLY

- Dedicated cooling fan
- Keyed locking mechanism
- Spring-loaded pivoting access door

DRIVE CARRIER

- Durable metal construction
- Fully-ventilated
- Unique handle design automatically disengages drive
- Removable drive access cover

¹ SuperTrak SX6000, SuperTrak100, FastTrak SX, TX, and LP Series

PHYSICAL/ENVIRONMENTAL

Dimensions

- Housing Assembly: 8.25" x 5.75" x 1.625" (20.96cm x 14.61cm x 4.13cm)
- Drive Carrier: 7.5" x 4.625" x 1.625" (19.05cm x 11.75cm x 4.13cm)

Operating Temperature

- 32°F to 116°F (0°C to 47°C)

Relative Humidity

- 5% to 95% (non-condensing)

Warranty

- Two years limited parts and labor

KEY FEATURES

The following are key features of the Promise SuperSwap 1000:

DRIVE TYPES

- Supports standard Ultra ATA drives

ATA RAID "HOT SWAP" SUPPORT

- Supports Promise ATA RAID products providing mirroring (RAID 1), striping & mirroring (RAID 0+1), parity (RAID 3), and parity striping (RAID 5) at hardware level
- Hot swappable hard drives, allowing for easy repair/replacement of drives

STATUS INDICATORS²

- Drive Array LED displays status of drive in array (online, offline, critical (rebuilding/synchronizing))
- Disk Activity displays normal drive operation
- Power On/Off indicator
- Enclosure status indicates critical temperature, voltage, or fan status

ULTRA ATA/133 SUPPORT

- Allows auto-sensing of Ultra ATA/133 drive and implementation of 133MB/sec burst transfers
- RAID Management via Promise Array Management (PAM) utility

² For proper monitoring functionality of Fan RPM, Voltage, and Temperature, users must install Promise Array Management Utility. Visit <http://www.promise.com> to find these drivers.

GETTING STARTED

This section helps you prepare SuperSwap 1000 for installation into your personal computer or workstation. Please read this chapter carefully before attempting to install SuperSwap 1000. Users should record their current CMOS (system setup) settings before making any changes.



Note

SuperSwap 1000 is Ultra ATA/133 compatible and backwards compatible with Ultra ATA.

UNPACKING SUPERSWAP 1000

The SuperSwap 1000 package contains the following items:

- SuperSwap 1000 Housing Assembly
- SuperSwap 1000 Drive Carrier and removable cover
- SuperSwap 1000 User Manual
- Eight screws
- IDE cable
- Two keys

If any of the contents are missing or damaged, please contact your dealer or distributor immediately. SuperSwap 1000, like every other valuable part of your computer, is sensitive to static electricity. Be sure that you are properly grounded (Promise recommends that you wear an anti-static strap, or place a free hand on a grounded object), and that your computer is unplugged before installing SuperSwap 1000.



Attention

The electronic components within the SuperSwap 1000 are sensitive to damage from ESD (Electro-Static Discharge). Appropriate precautions should be observed at all times when handling the SuperSwap 1000 or its subassemblies.

INSTALLING DRIVE HOUSING ASSEMBLY

Installing SuperSwap 1000 into your computer is a simple process. There are two basic components involved: 1) installing the housing assembly in your system; and 2) installing a hard drive in the drive carrier. Make sure that you are properly grounded when installing SuperSwap 1000, either by touching a grounded portion of your computer, or by wearing a ground strap.

1. Power down and unplug your computer, then remove its cover.
2. Slide the housing assembly (see Figure 1) into one of the 5.25" drive bays of your computer.

3. Align the front of the housing assembly with the front of your computer, then install the included screws in the four anchor holes (two on each side) of the assembly (Figure 1).
4. Connect your Promise RAID controller's drive cable to the IDE HDD connector on the back of the housing assembly (see Figure 2), making sure that the red edge of the cable corresponds to Pin 1 of the housing assembly's connector (opposite the fan, and near the power connector).
5. Connect the power cable to the power connector (see Figure 2) on the back of the housing assembly.



Caution

Be careful to orient the connector properly before connecting. It is possible to force the connector in wrong. Applying power to the SuperSwap 1000 with the connector forced in wrong will damage your hard drive.

6. After making sure that all connections are properly seated, replace the computer's cover.

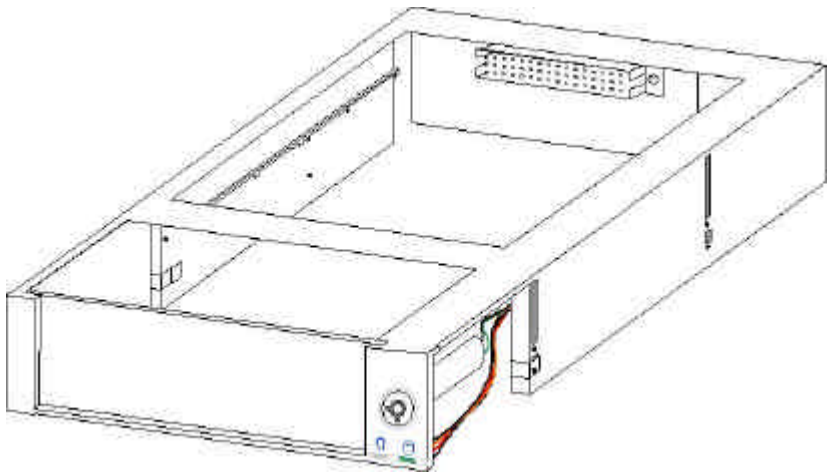


Figure 1. SuperSwap 1000 Housing Assembly

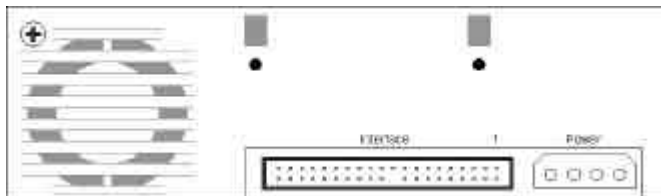


Figure 2. SuperSwap 1000 Housing Assembly Rearview

REMOVING/INSTALLING DRIVES

The Promise SuperSwap 1000 is designed to work with several Promise ATA RAID controllers that can support RAID 1 (FastTrak), and RAID 3 & 5 (SuperTrak). When used with these products and RAID configurations, the SuperSwap 1000 supports "hot swapping" of hard drives. "Hot swapping" means you can remove a drive while your system is operating and replace it with another. Hot swapping is performed by users when one of the drives has failed and needs replacement.



Note

In all other cases, when removing hard drives or installing new drives, you **MUST** power down your system prior to removal or installation and ground yourself. Failure to do so may result in damaging the drive, the controller card, motherboard, or other components.



Very Important

Only one SuperSwap 1000 per RAID controller channel can be used. Set the master/slave configuration for the hard drive being installed in a SuperSwap 1000 carrier as a **Master Drive**. For information about configuring the master/slave setting on your hard drive, consult your hard drive user's manual.

TO INSTALL A HARD DRIVE

1. Using the provided key, unlock the drive carrier by turning the key in the lock 90° counterclockwise (see Figure 3).
2. Remove the drive carrier from the housing assembly by firmly pulling on the drive carrier's handle (see Figure 3).
3. Depress the Cover Latch and slide off the drive carrier access cover (see Figure 3).
4. Attach the hard drive to the drive carrier's power connector and attach the drive carrier's HDD connector.
 - a. With the Drive Carrier Assembly setting on a table or desk, rotate the rear connector panel up and back 180°.
 - b. Hold the hard drive firmly in one hand and align its connectors to match with the connectors on the Drive Carrier Assembly.
 - c. Connect the power connector first.
 - d. Carefully press the hard drive against the HDD connector until the connection is properly seated.
5. Carefully fold the hard drive into the drive carrier, and install the mounting four screws (two on each side of the hard drive) to secure the hard drive into the drive carrier.
6. Replace the drive carrier access cover.

7. Slide the drive carrier back into the housing assembly. The carrier will snap back into place when seated correctly.
8. Lock the carrier into place by turning the key in the lock 90° clockwise (see Figure 3). Power will not reach the hard drive unless the carrier is locked into place.

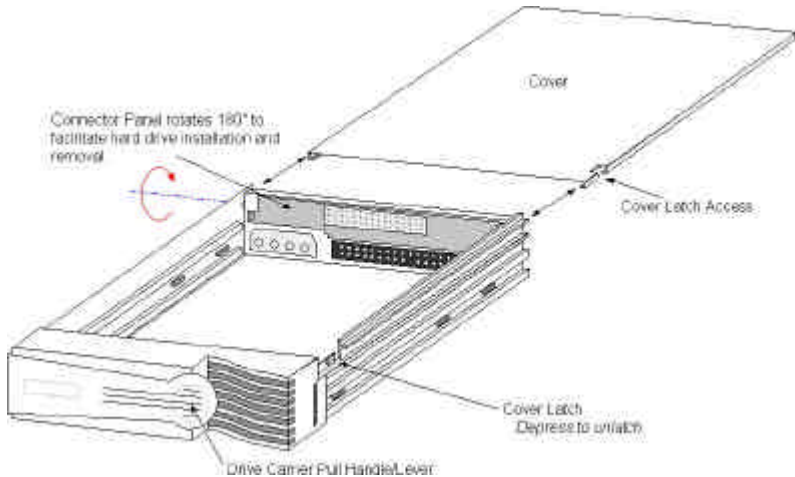


Figure 3. Drive Carrier Assembly

TO REMOVE A HARD DRIVE

1. Using the provided key, unlock the drive carrier by turning the key in the lock 90° counterclockwise (see Figure 3).
2. Remove the drive carrier from the housing assembly by firmly pulling on the drive carrier's handle (see Figure 3).
3. Depress the Cover Latch and slide off the drive carrier access cover (see Figure 3).
4. Remove the mounting screws that secure the hard drive to the Drive Carrier Assembly (two screws located along each side).
5. Carefully fold the hard drive out of the drive carrier.
6. Disconnect the hard drive from the drive carrier's power connector and detach the drive carrier's HDD connector.
 - a. With the Drive Carrier Assembly setting on a table or desk, rotate the hard drive up and back 180°.
 - b. Hold the hard drive firmly in one hand and disconnect the power connector.
 - c. Carefully pull the hard drive from the HDD connector.
7. Replace the drive carrier access cover if necessary or follow the instructions To Install a Hard Drive above.

8. Slide the drive carrier back into the housing assembly. The carrier will snap back into place when seated correctly.
9. Lock the carrier into place by turning the key in the lock 90° clockwise (see Figure 3).

TROUBLESHOOTING

This section provides information on how to interpret LED display codes as reported by the SuperSwap 1000. Two LEDs appear on the front of the SuperSwap 1000 housing assembly: Power/Array Status LED (left) and Drive Activity LED (right).

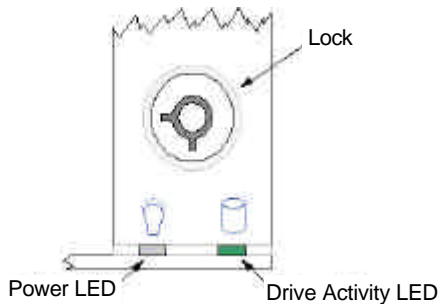


Figure 4. SuperSwap 1000 Status Indicators

Event: The Power/Array Status LED is steady green.

Cause: This is the "normal" condition when power is supplied to the drive.

Event: The Drive Activity LED is blinking green.

Cause: This is the "normal" condition when there is disk activity (read or write) executing on the drive.

Event: The Power/Array Status LED is dark.

Cause: This indicates that the drive power is off.

Event: The Power/Array Status LED is red.

Cause: This shows a failed drive. A failed drive may be marked as such because of power failure, hot removal or media access problems (such as a bad sector which fails retry). When a drive in a fault tolerant array is determined to have failed, the remaining drives in the array are internally adjusted to a later "generation" status to indicate that they represent the current version of the array.

Fix: Upon replacing a failed drive, the new drive will be assigned to the failed drive's original location. A rebuild will then begin based on data from the drives in the array that have the latest "generation." This "generation" tracking allows accurate reproduction of current data from the array drives that may have been written to during the time that the array was critical.

Event: The Power/Array Status LED is amber (yellow).

Cause: This shows that the drive is in the process of rebuilding and the array is in critical mode, or the system is initializing. The LED will return to green status when the rebuild is complete and successful.

Event: The Power/Array Status LED is green.

Cause: This is the "normal" running condition. No errors are indicated.

Event: The Power/Array Status LED for one drive does not light up, even though LEDs for other drives do.

Cause: This is an indication that the system was unable to find a drive plugged into the corresponding slot in the drive housing.

Fix: Make sure that there is indeed a drive installed correctly in a drive carrier and that it is appropriately configured for "master" drive operation (see the hard drive manufacturer's documentation for details about drive configuration). Verify that the drive carrier is inserted fully and correctly into the drive housing.

If the above items all seem okay, but the LED still remains unlit, you might try placing a *known good drive* with its carrier in the slot and see if the LED lights up. If the unit now functions correctly, then your previously installed hard drive was defective. If the LED still remains unlit, then there is a problem with the cable connection between the SuperSwap 1000 housing assembly and the controller card.



Note

During start-up, the Power/Array Status LEDs display amber (yellow) while your computer is booting. They will turn green by the time your computer is fully booted.

- With a FastTrak Series controller card, the LEDs turn green when the device driver loads.
- With the SuperTrak Series controller card, the LEDs turn green when the drives are detected at BIOS level.

As long as the PAM Utility or Promise BIOS indicate that your array status is Functional, your array is operating normally.

CONTACTING TECHNICAL SUPPORT

Promise Technical Support provides several support options for Promise users to access information and updates. We encourage you to use one of our electronic services, which provide product information updates for the most efficient service and support.

If you decide to contact us, please have the following information available:

- Product model and serial number
- BIOS and driver version numbers
- A description of the problem / situation
- System configuration information, including: motherboard and CPU type, hard drive model(s), IDE/ATAPI drives & devices, and other controllers.

TECHNICAL SUPPORT SERVICES

Promise Online™ Web Site

<http://www.promise.com>

(tech documents, drivers, utilities, etc.)

USA Tech Support Center

E-mail Support

support@promise.com

Fax Technical Support

(408) 228-6401

Attention: Technical Support

Phone Technical Support

(408) 228-6402

7:30-5:00pm M-F Pacific Standard Time

If you wish to write us for support:

Promise Technology, Inc.

Attn: Technical Support

1745 McCandless Drive

Milpitas, CA 95035, USA

European Tech Support

E-mail Support	support@promise.nl
Fax Technical Support	+31 (0)40-256-9463 Attention: Technical Support
Phone Technical Support	+31 (0)40-235-2600 8:30-5:00pm The Netherlands Time
If you wish to write us for support:	Promise Technology Europe B.V. Attn: Technical Support Luchthavenweg 81-125 5657 EA Eindhoven, The Netherlands

Pacific Rim Sales Office

E-mail Support	support@promise.com.tw
Fax Technical Support	886-3-578-2390 Attention: Technical Support
Phone Technical Support	886-3-578-2395 (Ext.8830) 9:00-6:00pm Taiwan Time
If you wish to write us for support:	Promise Technology, Inc. Attn: Technical Support 2F, No. 30, Industry E. Rd. IX Science-Based Industrial Park Hsinchu, Taiwan, R.O.C.

China Office

E-mail Support	support-china@promise.com
Fax Technical Support	86-(0)10-687-23940 Attention: Technical Support
Phone Technical Support	86-(0)10-687-23941 9:00-6:00pm China Time
If you wish to write us for support:	Promise Technology China Attn: Technical Support Room 3217, No. 11 South Zhong Guan Cun Street Hai Dian District, Beijing 100081 P.R. China

LIMITED WARRANTY

Promise Technology, Inc. ("Promise") warrants that for two (2) years from the time of the delivery of the product to the original end user:

- a) the product will conform to Promise's specifications;
- b) the product will be free from defects in material and workmanship under normal use and service.

This warranty:

- a) applies only to products which are new and in cartons on the date of purchase;
- b) is not transferable;
- c) is valid only when accompanied by a copy of the original purchase invoice.

THIS WARRANTY SHALL NOT APPLY TO DEFECTS RESULTING FROM:

- a) improper or inadequate maintenance, or unauthorized modification(s), performed by the end user;
- b) operation outside the environmental specifications for the product;
- c) accident, misuse, negligence, misapplication, abuse, natural or personal disaster, or maintenance by anyone other than a Promise or a Promise-authorized service center.

DISCLAIMER OF OTHER WARRANTIES

This warranty covers only parts and labor, and excludes coverage on software items as expressly set above.

Except as expressly set forth above, Promise disclaims any warranties, expressed or implied, by statute or otherwise, regarding the product, including, without limitation, any warranties of fitness for any purpose, quality, merchantability, non-infringement, or otherwise. Promise makes no warranty or representation concerning the suitability of any product for use with any other item. You assume full responsibility for selecting products and for ensuring that the products selected are compatible and appropriate for use with other goods with which they will be used.

Promise does not warrant that any product is free from errors or that it will interface without problems with your computer system. It is your responsibility to back up or otherwise save important data before installing any product and continue to back up your important data regularly.

Promise' s sole responsibility with respect to any product is to do one of the following:

- a) replace the product with a conforming unit of the same or superior product;
- b) repair the product;
- c) recover the product and refund the purchase price for the product.

Promise shall not be liable for the cost of procuring substitute goods, services, lost profits, unrealized savings, equipment damage, costs of recovering, reprogramming, or reproducing of programs or data stored in or used with the products, or for any other general, special, consequential, indirect, incidental, or punitive damages, whether in contract, tort, or otherwise, notwithstanding the failure of the essential purpose of the foregoing remedy and regardless of whether Promise has been advised of the possibility of such damages. Promise is not an insurer. If you desire insurance against such damage, you must obtain insurance from another party.

Some states do not allow the exclusion or limitation of incidental or consequential damages for consumer products, so the above limitation may not apply to you.

This warranty gives specific legal rights, and you may also have other rights that vary from state to state. This limited warranty is governed by the State of California.

RETURNING PRODUCT FOR REPAIR (USA AND CANADA ONLY)

If you suspect a product is not working properly, or if you have any questions about your product, contact our Technical Support Staff through one of our Technical Services, making sure to provide the following information:

- Product model and serial number (required);
- Return shipping address;
- Daytime phone number;
- Description of the problem;
- Copy of the original purchase invoice.

The technician will assist you in determining whether the product requires repair. If the product needs repair, the Technical Support Department will issue an RMA (Return Merchandise Authorization) number.

Return only the specific product covered by the warranty (do not ship cables, manuals, diskettes, etc.), with a copy of your proof of purchase to:

Promise Technology, Inc.
Customer Service Dept.
Attn.: RMA # _____
1745 McCandless Drive
Milpitas, CA 95035

You must follow the packaging guidelines for returning products:

- Use the original shipping carton and packaging
- Include a summary of the product's problem(s)
- Write an attention line on the box with the RMA number
- Include a copy of proof of purchase

You are responsible for the cost of insurance and shipment of the product to Promise. Note that damage incurred due to improper transport or packaging is not covered under the Limited Warranty.

When repairing returned product(s), Promise may replace defective parts with new or reconditioned parts, or replace the entire unit with a new or reconditioned unit. In the event of a replacement, the replacement unit will be under warranty for the remainder of the original warranty term from purchase date, or 30 days, whichever is longer.

Promise will pay for standard return shipping charges only. You will be required to pay for any additional shipping options (such as express shipping).

YOUR RESPONSIBILITIES

You are responsible for determining whether the product is appropriate for your use and will interface with your equipment without malfunction or damage. You are also responsible for backing up your data before installing any product and for regularly backing up your data after installing the product. Promise is not liable for any damage to equipment or data loss resulting from the use of any product.