

## Appendices

These appendices provide basic information about the IFT-6300 IDE RAID subsystem, some vocabulary assistance to users who are new to RAID, and specifics about how to receive software support and product upgrades.

**Appendix A :** Specifications (primarily hardware)

**Appendix B :** Glossary of Terms (primarily RAID-related)

**Appendix C :** Upgrades and Software Support

### A Specifications

Controller
<ul style="list-style-type: none"><li>• PowerPC-603e 100MHz RISC processor</li><li>• 32MB cache memory on SDRAM SODIMM</li><li>• 2 independent 33MHz 32/64-bit PCI buses</li><li>• Firmware in Flash ROM for easy upgrades</li></ul>
RAID Operation
<ul style="list-style-type: none"><li>• RAID level 0, 1(0+1), 3 and 5</li><li>• Hot-spare drive operation</li><li>• Drive hot-swapping</li><li>• Automatic background rebuild</li><li>• On-line drive expansion</li></ul>
Drive Interface
<ul style="list-style-type: none"><li>• IDE ATA-66/UDMA-66 (ATA/UDMA-100 applicable)</li><li>• 8 hot-swap drive bays and trays</li><li>• Support for one inch height form factor</li></ul>
Host Interface
<ul style="list-style-type: none"><li>• FC-AL Fibre Channel, transfer rate up to 100Mbytes/sec</li></ul>
<b>OR</b>
<ul style="list-style-type: none"><li>• Ultra160-Wide LVD SCSI, transfer rate up to 160Mbytes/sec</li></ul>
<b>OR</b>
<ul style="list-style-type: none"><li>• Ultra2-Wide LVD SCSI, transfer rate up to 80Mbytes/sec</li><li>• Concurrent I/O commands</li><li>• Tagged Command Queuing</li><li>• Automatic bad-sector reassignment</li><li>• Up to 12m cable length (<i>SCSI models</i>)</li></ul>

Controls / Indicators	
<ul style="list-style-type: none"> <li>• Front LCD control panel for setup and configuration</li> <li>• 3 drive LED indicators: power, activity, drive fault</li> <li>• Device failure indication through LCD</li> <li>• Built-in alarm / Alarm Mute button</li> </ul>	
Accessories	
<ul style="list-style-type: none"> <li>• External SCSI cable (<i>SCSI models only</i>)</li> <li>• Installed SCSI terminator (<i>SCSI models only</i>)</li> <li>• RS-232 Null Modem port adapter</li> </ul>	
Management Software	
<ul style="list-style-type: none"> <li>• <b>RAIDGuide</b> management software for Windows2000/NT via In-band Management (SCSI or Fibre)</li> <li>• Firmware-embedded manager via RS232C (platform independent)</li> </ul>	
Physical / Electrical	
<ul style="list-style-type: none"> <li>• <b>Interfaces</b></li> </ul>	<b>SCSI Only</b> : One 68-pin, LVD SCSI host channel
	<b>Fibre Only</b> : One 3-pin Fibre with one external DB-9 Fibre port; DB-9 connector has Tx, Rx, GND, and VCC for both copper fibre cable or MIA
	<b>All Models</b> : One DB-9 RS-232C serial port (38400, n, 8, 1) for terminal connection
<ul style="list-style-type: none"> <li>• <b>Power Supply</b></li> </ul>	Two redundant hot-swappable power supplies with PFC
<ul style="list-style-type: none"> <li>• <b>Input</b></li> </ul>	90~260VAC, 47 to 63 Hz
<ul style="list-style-type: none"> <li>• <b>Output</b></li> </ul>	@12V (14A max.), 5V (16A max.), 250Watts
<ul style="list-style-type: none"> <li>• <b>Cooling Fan</b></li> </ul>	Two cooling fans in two separate modules, ball bearing, 12V, 0.30A, 2850rpm, 34 dbA
<ul style="list-style-type: none"> <li>• <b>Operating Temp.</b></li> </ul>	5 to 40°C
<ul style="list-style-type: none"> <li>• <b>Relative Humidity</b></li> </ul>	10-95%, non-condensing
<ul style="list-style-type: none"> <li>• <b>Altitude</b></li> </ul>	Sea level to 10,000 ft
<ul style="list-style-type: none"> <li>• <b>Dimensions</b></li> </ul>	3U x 482W x 510D mm

## **B Glossary**

**ATA** **AT Attachment** – ATA is a disk drive implementation that integrates the controller on the disk drive itself. Also known as IDE, straight ATA supports one or two hard drives and a 16-bit interface.

**ATA-66** Also known as DMA-66, this is a version of ATA with throughput at 66 MBps.

**ATA-100** Also known as UDMA-100, this is a new version of ATA that increases ATA's throughput to 100 MBps.

**EIDE** **Enhanced IDE** – one version of the IDE mass storage device interface standard developed by Western Digital. It supports data rates of between 4 and 16.6 MBps. EIDE is sometimes referred to as Fast ATA or Fast IDE, which are all essentially the same standard. It is also sometimes called ATA-2.

**FC-AL** **Fibre Channel-Arbitrated Loop** – a high bandwidth, full duplex mass storage data transfer standard for use over optical cable.

**HBA** **Host-Bus Adapter** – an HBA is a device that permits a PC bus to pass data to and receive data from a storage bus (such as SCSI or fibre channel).

**Host** A computer, typically a server, which uses a RAID system (internal or external) for data storage.

**IDE** Abbreviation of either **I**ntelligent **D**rive **E**lectronics or **I**ntegrated **D**rive **E**lectronics. An IDE interface is an interface for mass storage devices, in which the controller is integrated into the disk drive. Although the term actually refers to a general technology, most people use it to refer the ATA specification. Refer to ATA for more information.

**In-Band SCSI or Fibre** (sometimes “in-band” or “In-band” and also known as “In-band Management”) A means whereby RAID management software can use SCSI or Fibre

Channel cabling and protocols to manage a controller. (Note: in-band management is typically used in place of RS-232 for controller management.)

**JBOD**     **J**ust a **B**unch of **D**rives – non-RAID use of multiple hard disks for data storage.

**JRE**     **J**ava **R**untime **E**nvironment – the Solaris Java program used to run .JAR applications locally or over a network or the internet.

**LUN**     **L**ogical **U**nit **N**umber – A 3-bit identifier used on a SCSI bus to distinguish between up to eight devices (logical units) with the same SCSI ID.

**Mapping**     The assignment of a protocol or logical ID to a device for purposes of data storage, data transfer, or device management.

**MIA**     **M**edia **I**nterface **A**dapter – a signal converter designed to convert standard DB-9 Fibre Channel signal interfaces to single- or multi-mode SC optics.

**Mirroring**     A form of RAID where two or more identical copies of data are kept on separate disks. Used in RAID 1.

**NRAID**     **N**on **RAID**

**Parity**     Parity checking is used to detect errors in binary-coded data. The fact that all numbers have parity is commonly used in data communications to ensure the validity of data. This is called parity checking.

**RAID**     **R**edundant **A**rrays of **I**ndependent **D**isks (Originally “Redundant Arrays of Inexpensive Disks”). The use of two or more disk drives instead of one disk, which provides better disk performance, error recovery, and fault tolerance, and includes interleaved storage techniques and mirroring of important data.

**SCSI**     **S**mall **C**omputer **S**ystems **I**nterface (pronounced “scuzzy”) – a high-speed interface for mass storage that can connect

computer devices such as hard drives, CD-ROM drives, floppy drives, and tape drives. SCSI can connect up to sixteen devices.

**Spare** (Local / Global) A drive designation used in RAID systems for drives that are not used but are instead “hot-ready” and used to automatically replace a failed drive. RAIDs generally support two types of spare, Local and Global. Local spares only replace drives that fail in the same logical drive. Global spares replace any drive in the RAID that fails.

**Stripe** A contiguous region of disk space. Stripes may be as small as one sector or may be composed of many contiguous sectors.

**Striping** Also called RAID-0. A method of distributing data evenly across all drives in an array by concatenating interleaved stripes from each drive.

**Ultra-ATA** Also called Ultra-DMA, ATA-33, and DMA-33, this ATA standard supports multiword DMA mode 3 running at 33 MBps.

**WWNN** World Wide Node Name – a unique 64-bit identifier assigned to fibre devices to distinguish them from all other fibre devices.

**WWPN** World Wide Port Name – a unique identifier assigned to fibre devices to help distinguish them from all other fibre devices.

## ***C Updates and Upgrades***

### **Java Runtime Environment**

JRE (Java Runtime Environment) is a shareware product from Sun/Solaris.

Two websites that may be of use relative to JRE are:

The main Java website URL:

**`java.sun.com`**

The JRE download website URL:

**`www.sun.com/software/solaris/jre/download.html`**

### **Software and Firmware Updates**

Infortrend will provide RAIDGuide and controller firmware updates periodically via our distributors and sales offices.

### **Uninstalling RAIDGuide**

RAIDGuide agents and RAIDGuide Manager can be uninstalled. Choose the Uninstall icon in the RAIDGuide group.