



**Diverse
Logistics
Inc.**

3XFR™ **RAID 0/1/3** **CONTROLLER**

THE PERFECT TOOL FOR HIGH PERFORMANCE REQUIREMENTS

NEWEST TECHNOLOGY

The **3XFR** is a fourth generation high performance Ultra SCSI RAID controller designed with the user in mind. Unlike traditional RAID controllers, there is no performance compromise made in order to be everything to everybody. The **3XFR** does one of three RAID functions (0,1, or 3) and does it better than any compromise controller on the market. And its technology will stay "the newest". With all its functions stored in flash RAM, the **3XFR** can have its operational characteristics changed or be updated to the latest revision on site through its own serial port.

RAID 0 = PERFORMANCE

The ultimate performer, the **3XFR** is capable of tripling the drive throughput speeds up to the limit of the host Ultra SCSI channel (40 MB/Sec). In fact, with three of the latest 10,000+ RPM drives from Seagate, the **3XFR** has been measured at throughput rates in excess of 35MB/sec over the full capacity of the drives. This performance is made possible by striping across three Ultra SCSI (40MB) drive channels to 3, 6, 9, or 12 drives.

A user can obtain sustained data throughput rates in excess of 25MB/sec over the full capacity of the drive making use of the much less expensive 7200 RPM drives.



RAID 3 = PERFORMANCE WITH REDUNDANCY

The **3XFR** will effectively double the throughput rate of a single drive in RAID 3 while recording redundancy information on the third drive such that in case of a failure of any single drive, the data will not only be preserved, the system will continue to function normally. When the defective drive is replaced, the system will rebuild it automatically. The internal high speed logic of the **3XFR** accomplishes this task by efficiently striping the data blocks across two of the 3 drive sets. At the same time, it calculates parity information and records it on the third drive.

RAID 1 = THE ULTIMATE IN DATA PRESERVATION

The **3XFR**, in its RAID 1 mode will write a duplicate (mirror) drive for each data drive. As in RAID 3, if one drive fails, the system will continue to operate normally. When the failed drive is replaced, the **3XFR** rebuilds it automatically. Unlike RAID 3, each drive of a mirrored set contains all the data for that set. If the user were to want to construct another system with the same data, all that is necessary is to move one of the drive sets to the new system and run. When the removed set is replaced, by new drives, they will be rebuilt by the **3XFR** automatically.

APPLICATIONS

- **Non Linear Audio/Video**
- **Network servers**
- **Internet Servers**
- **Seismic**
- **Animation**
- **Geophysics**
- **High end personal computers and workstations**
- **Large Scale imaging and graphics**
- **Satellite Imaging**
- **CAD/CAM**
- **Supercharging RAID disk arrays**
- **Radio and TV Broadcast Pre-Press and rendering**

Features

- ◆ RAID 0 (Striping) Triples Sustainable HDD data rates.
- ◆ RAID 3 Doubles Data Rate With Redundancy.
- ◆ Compatible with all SCSI hard disk drives.
- ◆ RAID 1 (Mirroring) Writes identical data to 2 drives.
- ◆ Concatenates all drives to present a single standard SCSI drive to the host.
- ◆ Easy fast installation.
- ◆ Disk Spindle Synchronization, improves data throughput.
- ◆ On Board Serial Port.
- ◆ FlashRAM is used for all functions.
- ◆ Jumper selectable SCSI Host ID.
- ◆ Jumper selectable Write Cache Enable.
- ◆ Very low power consumption.
- ◆ Easy to mount, uses 3½" drive factor.

Benefits

- ◆ Pure raw performance - without additional system overhead.
- ◆ High speed performance - with data protection..
- ◆ Enhances current range of drives and provide protection for investment in older drives.
- ◆ Each drive of a set contains all the data for that set.
- ◆ Very large drive capacity available to the system without using more than one SCSI ID and no limits on partitioning.
- ◆ Simple to install, set SCSI ID, cable up and run.
- ◆ Add Synchronization cable between drives to stabilize variable rotation offset.
- ◆ Controller can be set up, controlled, trouble shot and upgraded on site without removal from its mounting..
- ◆ Can be upgraded on site to latest firmware.
- ◆ Jumper Host SCSI ID.
- ◆ Automatically enables the Drive Write Cache.
- ◆ Cooling does not have to be a consideration.
- ◆ Simple integration into existing system enclosures and drive enclosures.

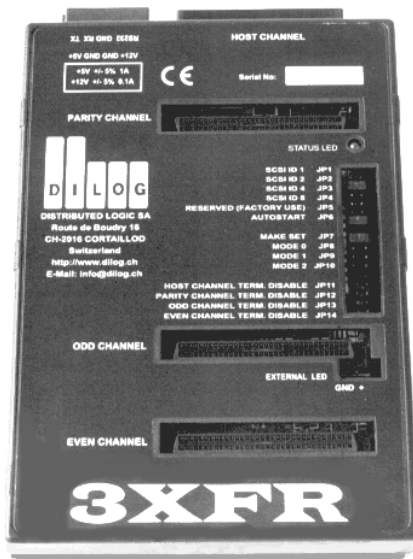
SPECIFICATIONS

CONFIGURATION	RAID 0/1/3 External
Host Interface	1 Channel SCSI-3 Ultra Fast Wide Single ended
Host Cabling	68 pin high density
Target Interface	3Channels SCSI-3 Ultra Fast Wide Single ended
Target Cabling	68 pin high density
DRIVES	All SCSI 50 pin and 68 pin interface
Number	Up to 12 Drives
TOTAL CAPACITY	
RAID 0	Sum of individual drive capacities
RAID 1	1/2 of individual drive capacities
RAID 3	2/3 sum of individual drive capacities
RS233 TERMINAL	3 pin 9600 baud N81
POWER	
Connector	Std. 4 pin Molex
Requirements	+5VDC 1A. Max +12VDC .1A
DIMENSIONS	
3 1/2" Drive Form Factor	
Height	25 mm / .975"
Width	102 mm / 3.978"
Depth	150 mm / 5.85"
RELIABILITY	
MTBF	<750,000 hours
MTTR	>30 minutes
OPERATING ENVIRONMENT	
Temperature	5 to 55C
Humidity	8-90% non-condensing

SPECIAL FEATURES

LOW OVERHEAD

The 3XFR was designed for maximum performance with a minimum of system overhead. All the connected drives are concatenated and presented to the system as a single, very large standard SCSI drive. The user can partition the drive in any manner to suit the application. Its operation is completely transparent to the system. No special software or software considerations are required.



SERIAL COMM PORT

The 3XFR has its own serial interface port for use in management, troubleshooting and configuration. When connected to a terminal, or terminal emulator, the serial port provides a wealth of information whenever the 3XFR is being powered up, is in the process of making a RAID drive set or rebuilding a new or marginal drive. With its extensive command repertoire, it can be used for setting up the 3XFR to any special configurations, to change the SCSI sense byte, or to load its flash ROM with a new or revised set of firmware.

ACTIVE TERMINATORS

Each of the 3XFR's Ultra SCSI channels has an active terminator. The use of active terminators goes a long way towards "cleaning up" a SCSI bus whenever multiple devices are connected. The terminators be

individually deactivated through either the on board jumpers or through the serial communications port.

REBUILD PRIORITY

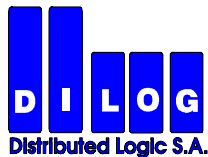
The 3XFR allows for setting the rebuild priority. In circumstances where the disk system is very busy and a rebuild process will slow down production, the priority may be set to "low". At that point, the 3XFR uses mostly idle time for its rebuild process. In other circumstances where the integrity of the data is more important than the full speed operation of the disk system, the rebuild priority can be set to "high" in which case there will be a certain amount of reduction in disk system response in favor of speeding up the rebuild process. The priority may be tuned between these extremes depending on the importance of redundancy vs. disk response.

MOUNTING VERSATILITY

The 3XFR is physically small and has no front panel indicators or controls. It has the same form factor and side mounting configuration as a 3 1/2" disk drive. As a result, it may be mounted in a standard 3 1/2" disk position, or anywhere else in the enclosure that might be handy. Its low power consumption means that there are no special cooling considerations.



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