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# Shared Storage for DIGITAL UNIX Using UltraSCSI Hubs

Storage**Works**

## Application Note
EK–SMA20–AN. A01

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## DIGITAL UNIX Shared Storage Configuration Components

> **NOTE**
>
> Please review the Shared Storage Solutions Using UltraSCSI Hubs Application Note before referencing this document.

The shared storage configuration consists of:

- DIGITAL AlphaServer system running:

    - DIGITAL UNIX V4.0b, Patch Kit 6

    - HSZ70 Solution Software Kit for DIGITAL UNIX

- RAID Array (RA) 7000 or Enterprise Storage Array (ESA) 10000 with a single or dual-redundant HSZ70 controller using HSOF V7.0 or newer software

> **NOTE**
>
> The StorageWorks RAID Array 450 subsystem (HSZ50 controller) can also be substituted in place of the RA7000 or ESA10000, but only in clustered configurations that support this subsystem.

- UltraSCSI Hub, DWZZH-03, with 3 differential ports

> **NOTE**
>
> The DWZZH-21 UltraSCSI hub, with 2 single-ended ports and 1 differential port, is for special OEM applications only. It is not supported in shared storage configurations.

## Configuration Setup Procedures

> **NOTE**
>
> Please refer to the *DWZZH 16-Bit SCSI Bus Hub User's Guide* before proceeding with the following reference guidelines.

Before connecting the host systems to the storage subsystem via the Hub, complete the following:

**Host Adapters**:

1. Verify the host adapters are internally terminated:

   - For host adapters with removable terminators, verify that the host terminators are securely installed on the host adapter board

     **OR**

   - For host adapters with termination configurable by a setup utility, verify that the termination setting is listed as "Enabled"

2. Set each host bus adapter to a unique SCSI ID.

3. Set the SCSI bus transfer speed to either *Fast* or *Enable UltraSCSI*.

4. Disable SCSI Bus Reset. This prohibits Bus Reset commands generated by one host affecting the operation of other hosts within the configuration.

> **NOTE**
>
> Please refer to the specific host adapter's configuration guide for detailed information on setting the SCSI bus parameters.

**HSZ70 Controller:**

> **NOTE**
>
> The following controller function settings are modified using either StorageWorks Command Console (SWCC) or Command Line Interface (CLI).

1. Set the HOST-FUNCTION mode to "A" for all controller target IDs (storagesets) that will be used by the DIGITAL UNIX host system. For example, if you are using the HSZ70 Command Line Interface, enter:

   ```
   SET THIS_CONTROLLER HOST_FUNCTION=(2,A)
   ```

   This sets the HSZ70 controller SCSI target ID 2 to HOST_FUNCTION mode A.

2. Restrict the access to the storage units used by the DIGITAL UNIX server. The access to the storage unit is made exclusive to a specific host initiator SCSI ID. For example, if you are using the HSZ70 Command Line Interface, enter:

   ```
   SET D200 ACCESS_ID=6
   ```

   This restricts access to storage unit D200 to the host with SCSI ID 6.

**NOTE**

Refer to the *HSZ70 Array Controller HSOF Version 7.0 Configuration Manual* for further instructions on setting up the controllers.

**NOTE**

Exclusive storage unit access is **not** supported with the RAID Array 450 subsystem (HSZ50 controller).

### UltraSCSI Hub:

1. Place the UltraSCSI hub in either a StorageWorks BA356 storage shelf or pedestal or in the lower right-hand device slot of the BA370 shelf within the RA7000 or ESA10000.

**CAUTION**

Do not exceed 25 meters maximum length per bus segment when installing the UltraSCSI hub.

2. Cable the host connector of the HSZ70 controller to one controller port of the UltraSCSI hub.

3. Cable the host adapters to the other ports of the UltraSCSI hub.

**NOTE**

Some host adapters may require the use of a BN38E-0B Technology Adapter Cable in order to connect the UltraSCSI cable to the host adapter's connector.

## Clustering:

Clustering is only supported in a homogeneous (i.e., "same operating system") host configuration using DIGITAL UNIX V4.0b ASE/TruCluster 1.4a, Patch Kit `TCR14Ahsz70-bl8er.tar.`

**NOTE**

See your host server's "Supported Options List" for more information concerning cluster supported adapters.

In a clustered environment, set up the HSZ70 controllers as described above, but do **not** restrict access to the storage units. If access has been restricted reset the storage units for access by all hosts. For example, if you are using the HSZ70 Command Line Interface, enter:
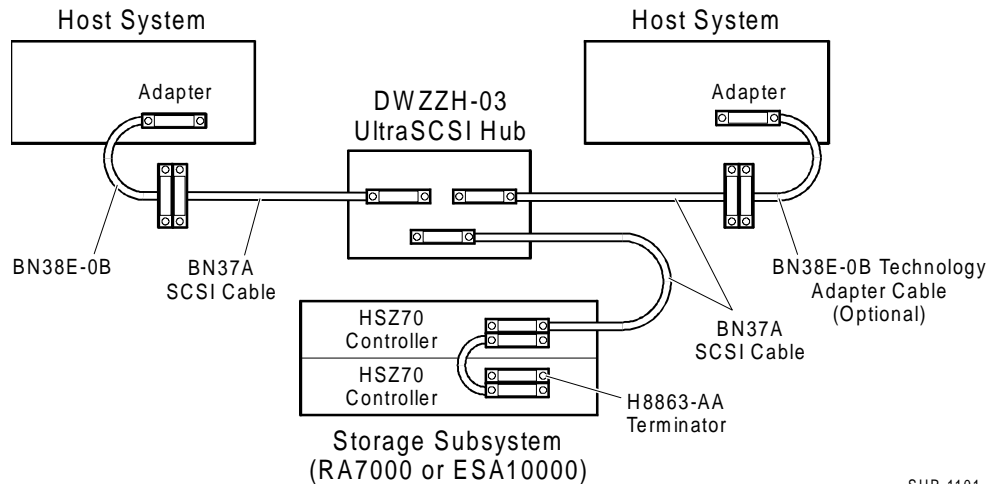
**SET D200 ACCESS_ID=ALL**

This allows access to storage unit D200 by all hosts, as required in a cluster environment.

**NOTE**

Clustering is also supported utilizing a StorageWorks RAID Array 450 (HSZ50 controller) substituted for the RA7000 and ESA10000. See the *Configuring Your StorageWorks Subsystem HSZ50 Array Controllers, HSOF Version 5.0 Configuration Guide* for more information on RAID Array 450 configuration.

## Configuration Parts List:



Host System — Adapter — DWZZH-03 UltraSCSI Hub — Host System — Adapter — BN38E-0B — BN37A SCSI Cable — BN38E-0B Technology Adapter Cable (Optional) — HSZ70 Controller — HSZ70 Controller — BN37A SCSI Cable — H8863-AA Terminator — Storage Subsystem (RA7000 or ESA10000)

SHR-1101

(1) RA7000 or ESA10000 includes the following (minimum) components:

- (1) HSZ70 Controller, HSOF V7.0
- (1) VHDCI UltraSCSI Tri-Link, H8863-AA
- (1) VHDCI UltraSCSI Terminator, H8863-AA
- (1) VHDCI UltraSCSI Cable, BN37A (5 m for RA7000, 10 m for ESA10000)
- (1) Technology Adapter Cable, HD68 to VHDCI, BN38E-0B

(2) Host Adapter, Wide Differential:

- KZPBA-CB, VHDCI UltraSCSI, firmware version 5.53 or newer
- KZPSA-BB, HD68 SCSI, firmware version A11 or newer (requires using a BN38E-0B Technology Adapter Cable)

(1) UltraSCSI Hub, DWZZH-03, 3 Differential Ports

(2) BN37A, VHDCI UltraSCSI cable (available in lengths from 0.3m to 25m)

(1) StorageWorks DS-BA356-xx shelf with dual power supplies for the UltraSCSI hub (optional)

## Configuration References

The following documents provide further information for the configuration of the components utilized in shared storage configurations:

| Topic | Document Title | Order Number |
|---|---|---|
| *DIGITAL UNIX* | *Getting Started, HSZ70 Solution Software V7.0B for DIGITAL UNIX, Installation Guide* | *AA–R60KC–TE* |
| *DIGITAL UNIX* | *Release Notes RAID Array 7000/Enterprise Storage Array 10000 V7.0B for DIGITAL UNIX* | *AA–R60LC–TE* |
| *RA7000 / ESA10000* | *RA7000 and ESA10000 Storage Subsystems User's Guide* | *EK–SMCPP–UG* |
| *HSZ70 Controller* | *HSZ70 Array Controller HSOF Version 7.0 Configuration Manual* | *EK–HSZ70–CG* |
| *RAID Array 450 (HSZ50 Controller)* | *Configuring Your StorageWorks Subsystem HSZ50 Array Controllers, HSOF Version 5.0, Configuration Guide* | *EK–HSZ50–CG* |
| *StorageWorks Command Console* | *Command Console (Version 1.1) User's Guide (for use with RAID Array 450)* | *AA-R24LA-TE* |
| *StorageWorks Command Console* | *Command Console (Version 2.0) User's Guide (for use with RA7000 / ESA10000)* | *AA-R60EA-TE* |
| *UltraSCSI* | *UltraSCSI Configuration Guidelines* | *EK–ULTRA–CG* |
| *UltraSCSI Hub* | *DWZZH 16-Bit SCSI Bus Hub User's Guide* | *EK–DWZZH–UG* |
| *Shared Storage* | *Shared Storage Solutions Using UltraSCSI Hubs* | *EK–SMA21–AN* |