



Doc Size 6.785 bytes

Service Hints & Tips

Document Number
GSMH-39EAWV

PS/2 - SCSI Bus Termination Guidelines

Service Information:

Failure to properly terminate the SCSI Bus can result in poor signal quality and noise on the bus. Errors caused by this condition may be intermittent, and difficult to diagnose. These include difficult to understand Operating System Boot problems and IML failures.

The SCSI Bus is a high-speed bus which has the capability of operating at data rates up to 5/mb per second. Fast SCSI2 specifications push this limit to 10Mb/s and Fast/Wide specifications enable limits upto 20MB/s.

Because of this capability, the bus must be terminated properly at the physical ends of external interface cables. SCSI2 controllers require active termination to be applied. The terminator resistor networks minimise signal reflections on the bus and insure proper voltage levels. The following SCSI termination schemes may be encountered in the field.

- a. SCSI Adapter/A (this adapter has no cache memory). A *T-RES* Terminator is on the adapter and is described in #4 below
- b. SCSI Adapter/A with cache (no onboard terminator). This adapter has no *T-RES* terminator onboard and is described in #5 below.
- c. SCSI Adapter/A with cache (with onboard terminator)

Note:

New Version - automatically substitutes for "b" above. This adapter has a *T-RES* terminator onboard and is described in #4 below.

- d. Integrated SCSI Controller (Part of the system planar). There is a *T-RES* terminator on the planar and is described in #6 below.

The Following Rules Are a Guide For Proper SCSI Termination:

1. The SCSI Bus must always have a terminator on the device at the physical end of the SCSI bus. These devices include Hardfiles, Tape Drives, CD-ROM Drives etc, and the SCSI Adapter itself, if no devices are connected to one of the interfaces.
2. Terminators are installed only at the ends of the SCSI bus. Terminators which are installed on devices which are not at the end of the bus must be removed from the devices. Failure to do so, will result in excessive current on the SCSI Bus. This can cause early life failure of any attached SCSI device, if operated for extended periods of time. The failure is caused by the Bus Drivers on the SCSI Devices breaking down due to excessive power dissipation.
3. When installing SCSI devices on the internal interface, always attach the device to the last physical connector on the cable.
4. For the IBM PS/2 SCSI Adapter/A with the onboard *T-RES* Module (Terminator). Termination of the adapter is accomplished when the 20 pin *T-RES* Module is in its socket (this module is usually orange or yellow in colour). The *T-RES* module needs to be removed from the adapter if both internal and external devices are attached to the adapter. In this situation, the SCSI bus is terminated at the last device on both the internal and external cables.
5. For the IBM PS/2 SCSI Adapter/A (W/Cache) which does not have an onboard *T-RES* Module. Termination of the adapter is done in one of the following three ways:

- a. only external devices are connected to the adapter, attach the internal terminator to the edge card connector on top of the adapter and terminate the last device on the external SCSI cable
 - b. only internal devices are connected to the adapter, attach the external terminator plug to the connector at the rear of the adapter and terminate the last device on the internal SCSI cable.
 - c. both internal and external devices are connected, termination is done on the last device on the internal cable and termination is done on the last device on the external cable.
6. For the SCSI Controller which is built into the System Planar, there is also a *T-RES* Module (Terminator) on the System Planar (refer to the HMR manual for exact location). The termination of the SCSI bus is accomplished when the 20 pin *T-RES* module is in its socket (This module is usually orange in colour). The *T-RES* Module needs to be removed from the Planar if both internal and external devices are attached to the controller. In this situation, the SCSI Bus is terminated at the last device on the internal cable and the last device on the external cable,

Note:

The following publication is available by ordering GG24-4002-00: "IBM PS/2 and PS/Valuepoint Subsystems." This book provides valuable information about SCSI and XGA-II Subsystems and supersedes earlier document: "SCSI Architecture and Implementation".

SAS KEYWORDS :

PSY2	PSY2FDSK	PSY2ADPT	8550SYSFDSK
8557SYSFDSK	8560SYSFDSK	8565SYSFDSK	8570SYSFDSK
8580SYSFDSK	8590SYSFDSK	8595SYSFDSK	8550SYSADPT
8557SYSADPT	8560SYSADPT	8565SYSADPT	8570SYSADPT
8580SYSADPT	8590SYSADPT	8595SYSADPT	D/T8557
D/T8555	D/T8560	D/T8565	D/T8570
D/T8573	D/T8580	D/T8590	D/T8595
D/T8556	D/T8556SYSFDSK	8556SYSADPT	D/T9595
D/T9590	D/T9585	D/T9576	D/T9577
D/T9556	D/T9557	PSVP	D/T6382
D/T6384	D/T6387		

Document Information:

Search Keywords
Hint Category
Date Created **12.12.91**
Last Updated **17.06.97**
Revision Date **17.06.98**
Brand **IBM PC**
Product Family **PS/2**
Machine Type **8555, 8556, 8560, 8565, 8570, 8573, 8580, 8590, 8595, 9556, 9557, 9576, 9577**
Model **Various**
TypeModel
Retain Tip (if applicable) **H092645**
Reverse Doclinks and Admin Purposes