Instruction Manual

Tektronix

DAS 92DM930 & PRISM 32DM930
MIL-STD 1553 A/B Bus Support

070-8884-01

There are no current European directives that apply to this product. This product provides cable and test lead connections to a test object of electronic measuring and test equipment.

Warning
The servicing instructions are for use by qualified personnel only. To avoid personal injury, do not perform any servicing unless you are qualified to do so. Refer to all safety summaries prior to performing service.

Online Version: April 1997

Instrument Serial Numbers

Each instrument manufactured by Tektronix has a serial number on a panel insert or tag, or stamped on the chassis. The first letter in the serial number designates the country of manufacture. The last five digits of the serial number are assigned sequentially and are unique to each instrument. Those manufactured in the United States have six unique digits. The country of manufacture is identified as follows:

B010000	Tektronix, Inc., Beaverton, Oregon, USA
E200000	Tektronix United Kingdom, Ltd., London
J300000	Sony/Tektronix, Japan
H700000	Tektronix Holland, NV, Heerenveen, The Netherlands

Instruments manufactured for Tektronix by external vendors outside the United States are assigned a two digit alpha code to identify the country of manufacture (e.g., JP for Japan, HK for Hong Kong, IL for Israel, etc.).

Tektronix, Inc., P.O. Box 500, Beaverton, OR 97077

Printed in U.S.A.

HARDWARE WARRANTY (92DM930)

Tektronix warrants that this product will be free from defects in materials and workmanship for a period of one (1) year from the date of shipment. If any such product proves defective during this warranty period, Tektronix, at its option, either will repair the defective product without charge for parts and labor, or will provide a replacement in exchange for the defective product.

In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Tektronix will provide such service at Customer's site without charge during the warranty period, if the service is performed within the normal on-site service area. Tektronix will provide on-site service outside the normal on-site service area only upon prior agreement and subject to payment of all travel expenses by Customer. When or where on-site service is not available, Customer shall be responsible for packaging and shipping the defective product to the service center designated by Tektronix, with shipping charges prepaid. Tektronix shall pay for the return of the product to Customer if the shipment is to a location within the country in which the Tektronix service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

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In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period and make suitable arrangements for the performance of service. Customer shall be responsible for packaging and shipping the defective product to the service center designated by Tektronix, with shipping charges prepaid. Tektronix shall pay for the return of the product to Customer if the shipment is to a location within the country in which the Tektronix service center is located. Customer shall be responsible for paying all shipping charges, duties, taxes, and any other charges for products returned to any other locations.

This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate maintenance and care. Tektronix shall not be obligated to furnish service under this warranty a) to repair damage resulting from attempts by personnel other than Tektronix representatives to install, repair or service the product; b) to repair damage resulting from improper use or connection to incompatible equipment; or c) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

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SOFTWARE WARRANTY (92DM930 & 32DM930)

Tektronix warrants that the media on which this software product is furnished and the encoding of the programs on the media will be free from defects in materials and workmanship for a period of three (3) months from date of shipment. If any such medium or encoding proves defective during the warranty period, Tektronix will provide a replacement in exchange for the defective medium. Except as to the media on which this software product is furnished, this software product is provided "as is" without warranty of any kind, either express or implied. Tektronix does not warrant that the functions contained in this software product will meet Customer's requirements or that the operation of the programs will be uninterrupted or error-free.

In order to obtain service under this warranty, Customer must notify Tektronix of the defect before the expiration of the warranty period. If Tektronix is unable to provide a replacement that is free from defects in materials and workmanship within a reasonable time thereafter, Customer may terminate the license for this software product and return this software product and any associated materials for credit or refund.

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Preface: A Guide to DAS 9200 and PRISM Documentation

The Digital Analysis System (DAS) 9200 documentation package provides the information necessary to install, operate, maintain, and service the DAS 9200. The DAS 9200 documentation consists of the following:

- a series of microprocessor-specific **microprocessor support instructions** that describe the various microprocessor support packages.
- a **system user manual** that includes a beginning user's orientation, a discussion of DAS 9200 system-level operation, and reference information such as installation procedures, specifications, error messages, and a complete system glossary.
- a series of **module user manuals** that describe each of the DAS 9200 acquisition, pattern generation, and optional I/O modules.
- an **on-line documentation** package that includes context-sensitive technical notes.
- a **programmatic command language user manual** that describes the set of programmatic commands available for remotely controlling the DAS 9200.
- a series of **application software user manuals** that describe the various application software packages.
- a **technician's reference manual** that helps a qualified technician isolate DAS 9200 problems to the individual module level and determine corrective action (including on-site removal and replacement of modules).
- a **verification and adjustment procedures manual** that allows a qualified technician to make necessary adjustments and verify specifications of the mainframe and modules.
- a series of **workbooks** that teach concepts about the DAS 9200 acquisition modules and pattern generation modules.

PRISM documentation consists of a number of different manuals. These manuals provide the information necessary to install, operate, maintain, and service the PRISM mainframe and associated application modules.

The PRISM documentation consists of the following:

- a **system user manual**, which includes a basic introduction to operating the PRISM mainframe, how to use the PRISM system-level menus, and reference information such as procedures to connect external devices, specifications, and a glossary of terms.
- **online documentation** that consists of notes that explain specific menu functions.
- **application module user manuals** that explain how to use the PRISM application modules.
- **application software user manuals** that describe the application software packages that can be used with the application modules.
- **microprocessor support instruction manuals** that describe the various microprocessor-specific support packages.
- **prototype debug tool user manuals** that describe how to use the debug tools to troubleshoot and integrate software and hardware on your microprocessor-based prototype.
- **service manuals** that help qualified technicians maintain, troubleshoot, and repair PRISM mainframes and application modules. These manuals also contain procedures for performing incoming inspections, verifying performance specifications, and making system adjustments.

About This Manual

This manual is based on the assumption that you are familiar with the operation of the DAS 9200 or PRISM mainframe and the 92A96 or 32GPX Acquisition Module. Therefore, details about system software and how to move through the menu structure are not provided.

This manual contains information for both the 92DM930 and the 32DM930 products. Information is presented in two ways: one topic with information for both types of products, or two topics, each one product specific.

This manual provides detailed information on how to do the following:

- install and load application software
- connect to your system under test
- setup the disassembler software and use it
- view acquired data
- maintain the probe adapter

The following conventions are used in this manual:

- the term system under test (SUT) is used to refer to the 1553A/B buses from which data is being acquired.
- references to 92A96 or 32GPX Modules include all versions of those modules unless otherwise noted.
- 1553 refers to both the MIL-STD 1553A and MIL-STD 1553B communications buses unless otherwise noted.
- a signal that is active low has a tilde (~) following its name.

Safety Summary

The general safety information in this summary is for operating and servicing personnel. Specific warnings and cautions can be found throughout the manual where they apply and may not appear in this summary. While using this product you may need to access parts of the mainframe system; if so, read the General Safety Summary in your system user manual for warnings and cautions related to operating the mainframe system.

Terms in This Manual. CAUTION statements identify conditions or practices that could result in damage to the equipment or other property.

WARNING statements identify conditions or practices that could result in personal injury or loss of life.

Terms as marked on Equipement.

CAUTION. CAUTION indicates a hazard to property, including the equipement itself, and could cause personal injury.

WARNING. WARNING indicates solely a personal injury not immediately accessible as you read the marking.

DANGER indicates a personal injury hazard immediately accessible as you read the marking.

Symbols as Marked on Equipment.

DANGER
High Voltage

Protective ground
(earth) terminal

ATTENTION
Refer to
manual

Use Care With Covers Removed. To avoid personal injury, remove jewelry such as rings, watches, and other metallic objects before removing the cover. Do not touch exposed connections and components within the product while the power cord is connected.

Remove From Operation. If you have reason to believe that the instrument has suffered a component failure, do not operate the instrument until the cause of the failure has been determined and corrected.

Use the Proper Fuse. To avoid fire hazard, use only a fuse of the correct type, voltage rating, and current rating.

Remove Loose Objects. During disassembly or installation procedures, screws or other small objects may fall to the bottom of the mainframe. To avoid shorting out the power supply, do not power on the instrument until such objects have been removed.

Do Not Operate in Explosive Atmosphere. To avoid explosion, do not operate this product in an explosive atmosphere unless it has been specifically certified for such operation.

Getting Started

The DAS 92DM900 and PRISM 32DM900 series of support products are developed by third parties to support buses, microprocessors, microcontrollers, and digital signal processors for specific Tektronix customers. These support products are currently being successfully used by these customers. If you need assistance in using this product, contact your local Tektronix Technical Support Specialist.

This section provides information on the following:

- the 92DM930 and 32DM930 Bus Support products
- logic analyzer system software (DAS 9200 or PRISM) compatibility
- logic analyzer configuration (DAS 9200 or PRISM)
- your 1553 bus requirements
- 92DM930 and 32DM930 restrictions
- how to install and load software
- how to configure the probe adapter
- how to connect the DAS 9200 or PRISM to the system under test

Product Description

The 92DM930 and 32DM930 Bus Support product provides user customizable displays of MIL-STD 1553A/B data bus activity. Data displays are generic and can be tailored to any specific implementation of the bus with user developed symbol tables. Data words are identified as either command/status or data. High and low word bit count, parity, and Manchester II encoding errors are detected and marked in the display.

Both buses of a dual redundant bus can be monitored. Bus activity is tracked with the active bus automatically selected for display. Illegal conditions, such as simultaneous activity on both buses, are also noted in the display.

Twinax connectors are provided for convenient connection to the system under test. Square pin connectors (25 mils on 100 mil centers) can be accessed inside the probe housing allowing any desired cabling to be substituted for the twinax connectors. (Refer to the *Specifications* section for channel assignments.) Stub or

transformer coupling is independently selectable for each channel. An internal 70 Ω termination can be switched in-line when connecting to the end of an unterminated bus.

The 92DM930 product runs on a DAS 9200 logic analyzer equipped with at least one 92A96 Acquisition Module. The 32DM930 product run on a PRISM logic analyzer equipped with at least one 32GPX Acquisition Module.

These products consist of software on one floppy disk, a probe adapter, and this manual. The software includes setup files, a demonstration reference memory, and a set of symbol tables. A complete list of all accessories and options is provided at the end of the mechanical parts list in the *Replaceable Parts List* section.

A demonstration reference memory is provided so you can see an example of custom formatted bus traffic. You can view the reference memory without connecting the DAS 9200 or PRISM to your system under test (SUT). The reference memory is automatically installed on the DAS 9200 or PRISM when you install the bus support software. Directions for viewing this file can be found in the *Operating Basics* section.

To use this product efficiently, you need to have the following:

- knowledge of your specific DAS 9200 or PRISM configuration and its operation
- knowledge of your 1553 bus system
- this manual
- the *DAS 9200 System User Manual* or the *PRISM System User Manual*, Tektronix, Inc.
- the *92A96 Module User Manual* or the *32GPX Acquisition Module User Manual*, Tektronix, Inc.
- the *MIL-STD 1553A/B* standard

Logic Analyzer System Software Compatibility

The 92DM930 Bus Support Product is compatible with DAS 9200 System Software Release 3, Version 1.3 or higher, DAS 92XTerm System Software Release 3, Version 1.3 or higher, and DAS 9202XT System Software Release 3, Version 1.3 or higher.

The 32DM930 Bus Support Product is compatible only with PRISM System Software Version 3.0 or higher, and PRISM 32GPX Module Application Software Version 1.0 or higher.

Logic Analyzer Configuration

To use the bus support product, your DAS 9200 must be equipped with at least one 92A96 Module.

Figure 1-1 shows an overview of a DAS 9200 connected to a typical probe adapter.

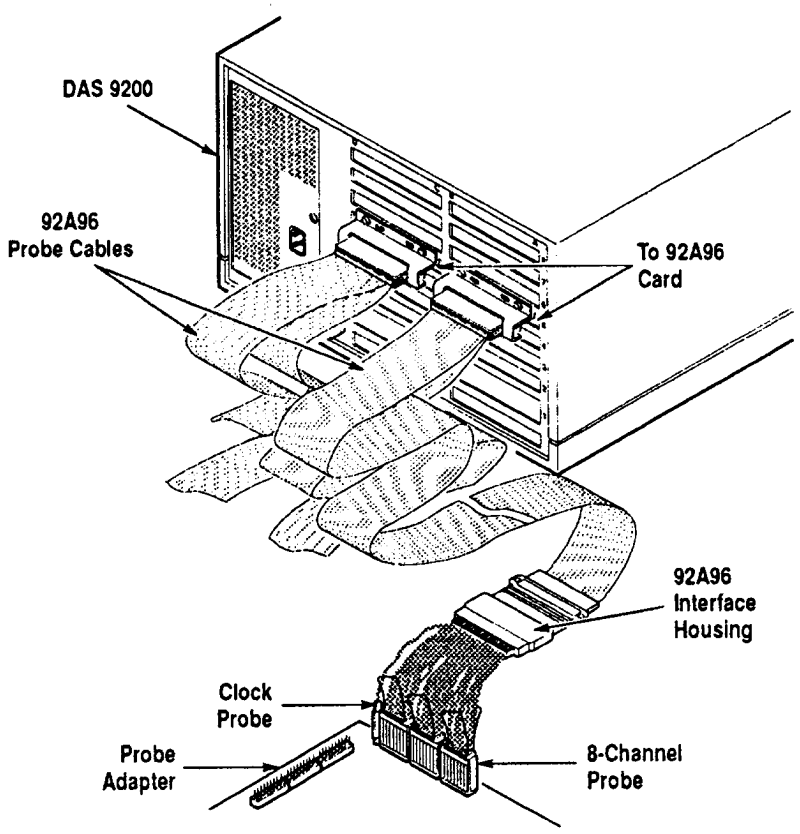

Figure 1-1: DAS 9200 Connected to a Typical Probe Adapter

To use the bus support product, your PRISM must be equipped with at least one 32GPX Module.

Figure 1-2 shows an overview of the PRISM connected to a typical probe adapter.

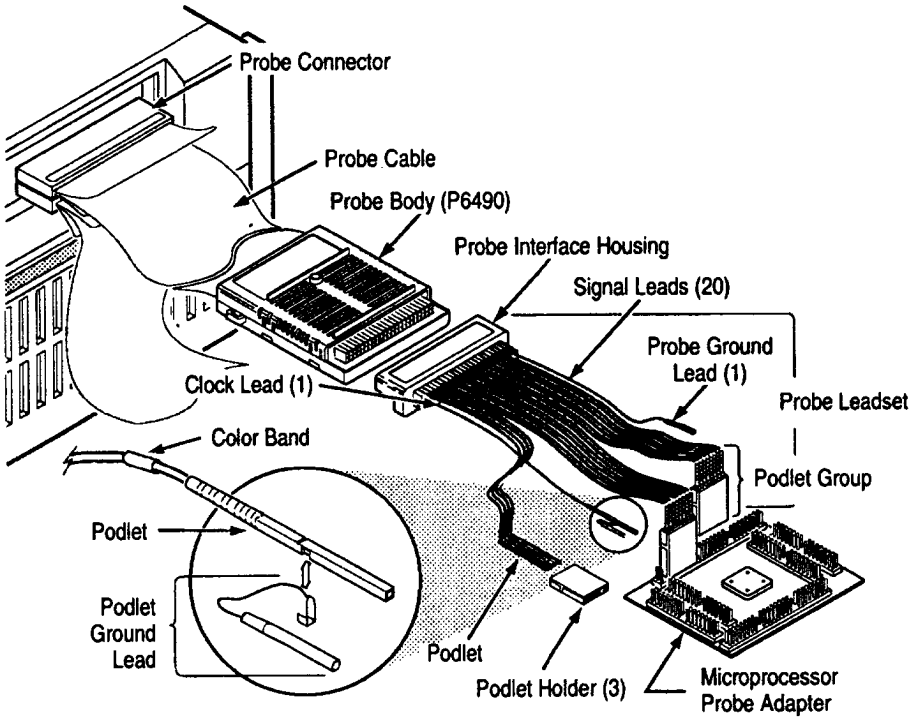

Figure 1-2: PRISM Connected to a Typical Probe Adapter

Requirements and Restrictions

This section describes requirements and restrictions of the bus support product.

1553 Dual Redundant Buses. The two input channels of the 1553 probe adapter can only be connected to a dual redundant bus. Connection to two separate 1553 buses will result in erroneous displays.

1553 Bus Coupling and Termination. Probe coupling must match the coupling method used in connecting to the 1553 bus. The internal termination must be selected when connecting to the end of an unterminated 1553 bus.

WARNING. *To prevent serious injury or death, test the operation of the 92DM930 or 32DM930 bus support on the 1553 bus that is critical to flight before flying the aircraft. If the bus support product or 1553 bus critical to flight fails while the aircraft is being flown, the aircraft may crash.*

Configuring the DAS 9200

When there are two or three 92A96 Modules in adjacent slots, they are automatically formed into a variable-width module by the system software at power up. If you need to use one 92A96 Module from a variable-width module, you must reconfigure the DAS 9200 prior to selecting software support in the 92A96 configuration menu. Refer to the discussion of the System configuration menu in the *DAS 9200 System User Manual* for details on how to reconfigure variable-width modules.

Refer to your module user manual for additional information about connecting probe cables, and positioning and installing 92A96 Modules.

Configuring the PRISM

No configuration of the PRISM is required with a single 32GPX Module support package.

Installing 92DM930 Software

Before installing the bus application software, you should be aware that there are three different versions of DAS 9200 system software: the 9201T version, the 92XTerm, and the 9202XT version. The 9201T version allows you to operate the DAS 9200 from a 9201T terminal. The 92XTerm version allows you to operate the DAS 9200 in an X window on a workstation. The 9202XT version allows you to operate the DAS 9200 in an X window on a 9202XT terminal.

NOTE. *The bus support package is compatible with all current DAS 9200 mainframe configuration and system software versions.*

If you have any two types of DAS 9200 system software (9201T, 92XTerm, 9202XT), and you switch between the two, you must install 1553 bus application software on each system.

To install the application software onto the DAS 9200, follow these steps:

1. Power on the DAS 9200 mainframe.
2. Insert the appropriate disk into the DAS 9200's floppy drive.
3. Press the Select Menu key, and select the Disk Services menu.
4. Select Install Application in the Operation field of the menu.
5. Press F8: EXECUTE OPERATION, and follow the on-screen prompts.

NOTE. *After each install and load operation, a message appears on the screen informing you the operation succeeded or failed. If the message tells you the operation failed, you may need to remove applications or files from the hard disk and try installing or loading again. If the operation fails again, refer to* Appendix A: Error Messages and Acquisition Problems.

You need about twice the amount of disk free space listed on the label of the floppy disk to install the software. The approximate space required to load the software (operate the software after it is installed) is listed on the label of the floppy disk.

If there is inadequate disk free space available on the hard disk, you must use the Remove Application or Delete File function of the Disk Services menu to free up enough disk space to install the support software.

Loading 92DM930 Software

To load the 1553 bus support software, follow these steps:

1. Press the Menu Select key, select the appropriate 92A96 Module, select its configuration menu, and press Return.
2. Select 1553 in the Software Support field.

When you load the support software, the channel, clock, and Trigger menus are automatically set up to acquire data from your 1553 bus system. You can change the setups in the clock and Trigger menus as needed. Refer to *Channel Groups and Assignments* in the next section for information on what can be changed in the channel menu.

Installing and Loading 32DM930 Software

This discussion describes how to do the following:

- install and load the support software onto the hard disk
- load the support software from the floppy disk into RAM

When you *install* the bus application software on the PRISM mainframe, you copy the files from the application floppy disk to the mainframe's hard disk. You install the application software only onto a hard disk system, and you need to do this procedure only once.

When you *load* the support software, the software from either the mainframe's hard disk or from the floppy disk is loaded into the PRISM's RAM. You must load the support software each time you reboot your system.

If your PRISM is a floppy disk system, proceed to *Loading Support Software Using Floppy Disks* later in this section.

NOTE. *After each install and load operation, a message appears on the screen informing you the operation succeeded or failed. If the message tells you the operation failed, you may need to remove applications or files from RAM or the hard disk, and try installing or loading again. If the operation fails again, refer to* Appendix A: Error Messages and Acquisition Problems.

Installing Software Onto a Hard Disk

To install the application software onto the PRISM hard disk, follow these steps:

1. Power on the PRISM mainframe.
2. Insert the disk labeled *PRISM 32DM930 1553 Bus Support* into the PRISM's floppy drive.
3. Select the Disk Services menu.
4. Select Install Software in the Select Operation field of the menu.
5. Press F1: Execute command to start the installation. A message at the top of the display tells you when installation is complete.

Loading Support Software From a Hard Disk

To load the support software from your hard disk into system RAM, follow these steps:

1. Power on the PRISM.
2. Select the Save/Restore menu.

3. Select Load Application in the Select Operation field.
4. Select GPX1 (or appropriate module) in the Module field.
5. Select the following in the Source fields:
   - HARD Disk
   - SUPPORT Directory
   - 1553_C File
6. Press F1 Execute command.

Loading Support Software Using Floppy Disks

To load the support software using floppy disks, you first load the 32GPX Module application software, then the support software.

To load application software for the 32GPX Module, follow these steps:

1. Insert your system disk into the PRISM and power on.
2. Insert the application disk when prompted.
3. Press the Return key. The application software will load automatically.

To load the support software, follow these steps:

1. Insert your 32DM930 application disk into the PRISM.
2. Select the Save/Restore menu.
3. Select Load Application in the Select Operation field.
4. Select GPX1 (or appropriate module) in the Module field.
5. Select the following in the Source fields:
   - FLOPPY Disk
   - SUPPORT Directory
   - 1553_C File
6. Press F1 Execute command.

Loading Software to Two or More 32GPX Modules

If you are going to acquire data from two 1553 dual redundant buses, such as Global and Local, you must have two 32GPX Modules in the PRISM mainframe. If you are going to acquire data from a third bus, you must have three 32GPX Modules. Module channel width must be set to 80 for each module.

Load the 32DM930 application software to the 32GPX1 module as previously described. Then, change the module selection to 32GPX2 and load the application software to that module. Repeat for the third module if used. Refer to the channel assignment tables in the Specifications section for probe connections to acquire data from the various 1553 buses.

Configuring the Probe Adapter

There are eight configuration jumpers on the probe adapter. The jumpers are labeled S1 through S8. Figure 1-3 shows the jumper locations on the front panel of the probe housing.

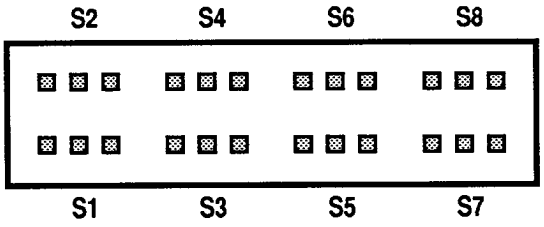

Figure 1-3: Configuration Jumper Locations

Table 1-1 lists the functions of each configuration jumpers. Figure 1-4 shows the two possible positions, left or right oriented, for the jumpers. Note that the Bus A Coupling, Bus B Coupling, and Bus B Enable functions are each controlled by a pair of jumpers. The jumper pairs must be in the appropriate position to select the desired operating mode.

Table 1-1 Probe Jumpers

Jumper Number	Jumper Function	Left Position	Right Position
S1	Bus A Coupling	Stub	Transformer
S2	Bus A Termination	Internall	External
S3	Bus B Enable	Enabled	Disabled
S4	Bus B Enable	Disabled	Enabled
S5	Bus B Coupling	Transformer	Stub
S6	Bus A Coupling	Stub	Transformer
S7	Bus B Coupling	Transformer	Stub
S8	Bus B Termination	External	Internal

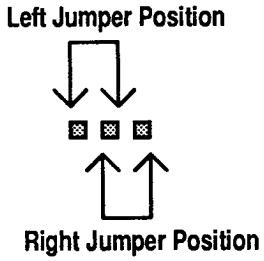

Figure 1-4: Jumper Positioning

Table 1-2 shows the required jumper positions for each configuration selection. Configuration selections controlled by jumper pairs are not physically adjacent to each other. The jumper layout was designed to prevent damage to the probe adapter if the jumpers were accidentally installed vertically. Figure 1-5 shows bus terminations for the jumpers.

Table 1-2 Jumper Selections

Operating Mode	Jumper Number							
	S1	S2	S3	S4	S5	S6	S7	S8
Bus A Internal Termination	x	L	x	x	x	x	x	x
Bus A External Termination	x	R	x	x	x	x	x	x
Bus A Stub Coupling	L	x	x	x	x	L	x	x
Bus A Transformer Coupling	R	x	x	x	x	R	x	x
Bus B Internal Termination	x	x	x	x	x	x	x	R
Bus B External Termination	x	x	x	x	x	x	x	L
Bus B Stub Coupling	x	x	x	x	R	x	R	x
Bus B Transformer Coupling	x	x	x	x	L	x	L	x
Bus B Enabled	x	x	L	R	x	x	x	x
Bus B Disabled	x	x	R	L	x	x	x	x

L = Left R = Right X = Don't Care

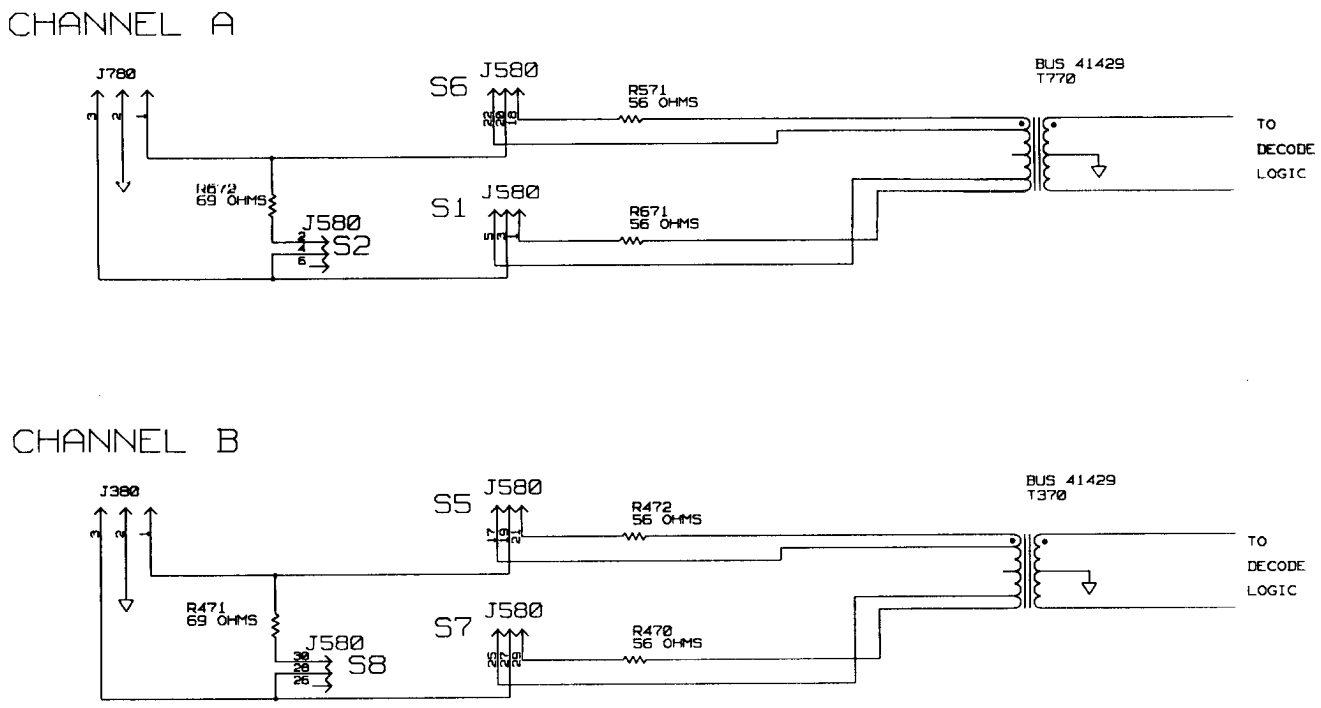

Figure 1-5: Bus Terminations for Probe Jumpers

Configuring 32GPX Leadsets

Leadsets for the 92A96 Module do not need to be configured. Leadsets for the 32GPX Module do need to be configured.

When you configure 32GPX leadsets, you combine the control signal podlets from two probes into one podlet holder. Figure 1-6 shows the configuration of leadsets after you have completed the configuration procedures.

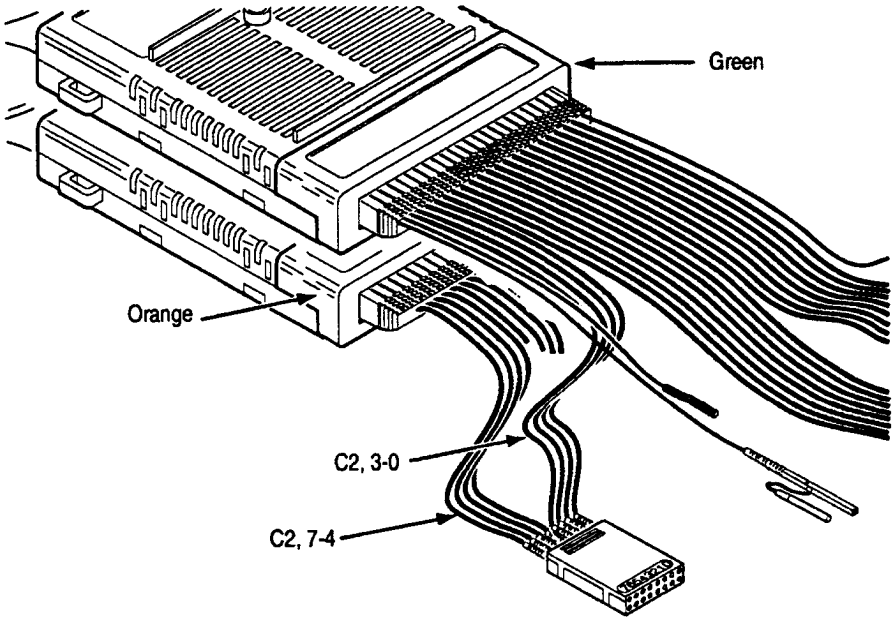

Figure 1-6: Final 32GPX Leadset Configuration

Before following this procedure, you must connect the P6490 probes to the PRISM. For procedures on connecting probes to the PRISM, refer to the *32GPX Acquisition Module User Manual*. The following procedure uses the set of orange and green probes as an example. The same procedure applies to the blue and gray probes.

To configure the leadsets, do the following:

1. Refer to Figure 1-7; move the green probe's control podlets (C2, 3-0) from their podlet holder.

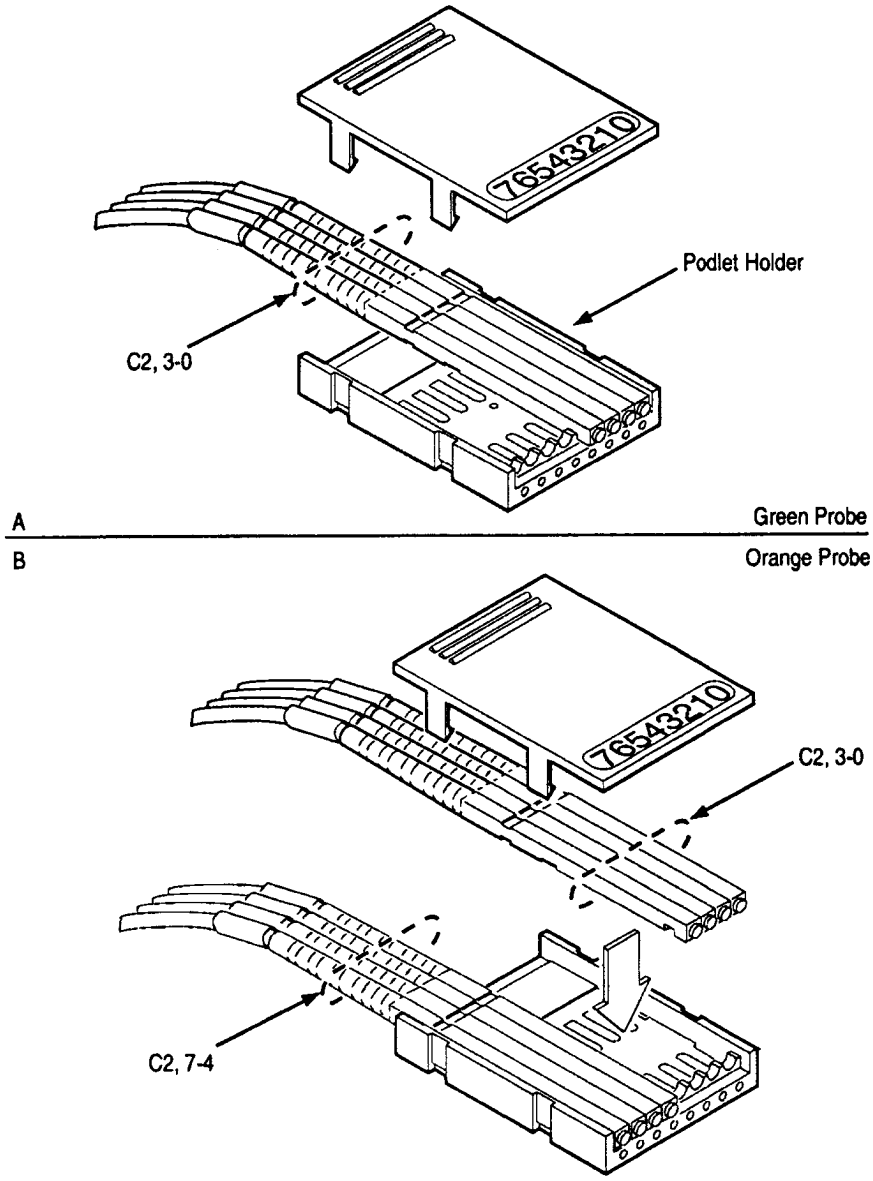

Figure 1-7: Moving 32GPX Control Signal Podlets from One Podlet Holder to Another

2. Refer to Figure 1-7 and place the podlets from the green probe into the control podlet holder of the orange probe.
3. Repeat steps 1 and 2 for the blue (C3, 7-4) and gray (C3, 3-0) probes.

Connecting to the System Under Test

Before you connect to the SUT, you must connect the appropriate probes to the acquisition module card (either 92A96 or 32GPX), and, for the 32DM930, you must configure the leadsets for the probe adapter.

The standard acquisition module probes and leadsets are to make the connections between the logic analyzer and the probe adapter. Twinax cables are used to make the connection between the probe adapter and the system under test. Refer to the *Replaceable Parts Lists* section for a list of accessories you can use to make these connections. To connect the DAS 9200 or PRISM to the probe adapter, follow these steps:

1. Remove power from the probe adapter. It is not necessary to turn off power to the DAS 9200 or PRISM.

CAUTION. *Static discharge can damage the probe adapter, the podlets, or the 92A96 or 32GPX Module. To prevent static damage, handle all of the above only in a static-free environment.*

Always wear a grounding wrist strap or similar device while handling the bus and probe adapter.

2. To discharge your stored static electricity, touch the bottom row of square pins on the 1553 probe adapter. Then, touch the case of the probe adapter to discharge stored static electricity from the adapter.

3. Use the channel assignment tables in the *Specifications* section to connect leadsets to the probe adapter.

4. Use the channel assignment tables in the *Specifications* section to connect the probes to the leadsets (already connected to the probe adapter).

5. Connect the power to the probe adapter.

6. Connect the twiax cables from the probe adapter to the 1553 bus(es) to be monitored. When a single 1553 bus is monitored use the probe adapter connector labeled Channel A. When a dual redundant 1553 bus is monitored use both the Channel A and Channel B connectors. Figure 1-8 shows the front panel of the probe adapter.

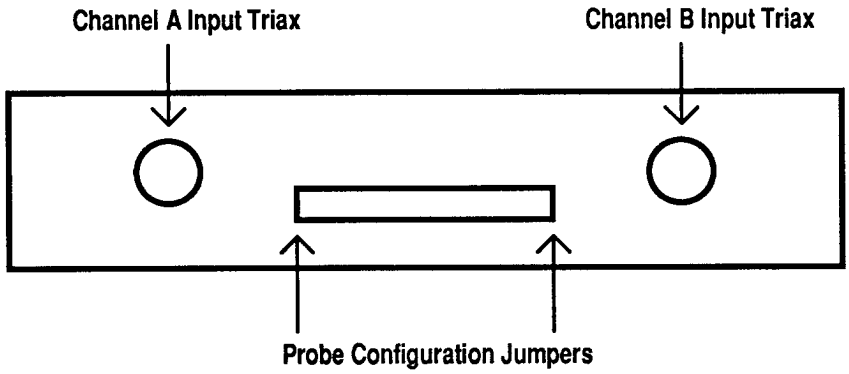

Figure 1-8: Probe Adapter Front Panel

Operating Basics

This section provides information on acquiring and displaying data. Information on general purpose analysis is also provided.

Setting Up Bus Support Software

This part of the section discusses the following:

- channel groups and assignments
- changes that affect data displays
- clocking options
- symbols

Before you acquire and display data, you need to load support software and specify setups for clocking, triggering, and using symbols. The bus support software provides default values for each of these setup controls, but you can change them as needed.

Channel Groups and Assignments

The bus support software automatically defines the channel groups for the 1553 bus. The channel groups for the 1553 bus are found in the channel assignment tables in the *Specifications* section.

92A96 Module channel groups cannot be changed nor can the channels be reused in another group, but you can define and display additional groups. Channel assignments are also shown in the 92A96 Channel Setup menu.

32GPX Module channel groups cannot be changed, but you can define and display additional groups. Signals can also be used in more than one channel group. Channel assignments are also shown in the Channel Group submenu of the 32GPX Setup menu.

Changes that Affect Display

You can change part of the default setups for the 92A96 Module. If you change the threshold voltage or display polarity, the displayed data will be affected.

You can also change part of the default setups for the 32GPX Module. However, keep in mind that if you change any of the following items, the displayed data will be affected:

- triggering application (for example, changing from a state application to a timing application)

- threshold voltage
- display polarity
- acquisition mode for TimeBaseA while in programmable trigger (for example, changing from 1553 to Synchronous or Transitional)

NOTE. *32GPX channel groups that are defined by the bus support software cannot be changed. However, they can be defined again for another group.*

Custom Clocking for 92DM930

You can use the 92A96 Clock menu to set clocking choices to control data sampling. The 92DM930 software offers a specific clocking selection for the 1553 bus. This clocking choice (Custom) is the default selection whenever you select 1553 Software Support in the Configuration menu.

The 92DM930 software acquires all 1553 bus transactions. No clock options are available. A description of how cycles are sampled by the support software and 92A96 Module is found in the *Specifications* section.

Display will not be correct with the Internal clocking mode. Descriptions of using the other clock selections with this bus support package can be found later in this section under *General Purpose Analysis*.

To select the clocking mode, follow these steps:

1. Press the Select Menu key.
2. Select the Clock menu for the module you want to use.

Clocking for 32DM930

The 32DM930 software offers a specific clocking selection for the 1553 bus. This clocking choice is the default selection whenever you load the bus support software to the 32GPX Module.

The 32DM930 software acquires all 1553 bus transactions. No clocking options are available. The *Specifications* section contains a description of how cycles are sampled by the support software and 32GPX Module.

Display will not be correct with Transitional or High Resolution clocking modes. A description of using these other clock selections with this bus support package can be found later in this section under *General Purpose Analysis*.

Symbols

Symbols can be used to represent data as a specific value (pattern symbols) or as a range of channel group values (range symbols are defined by upper and lower bounds).

A table of pattern symbols for the Control, Errors, and Bus channel groups is supplied and is automatically loaded with the bus support software. You can use symbol tables to display channel group information symbolically in the State menu and to control triggering.

When viewing symbols in the Symbol Definition Edit menu on the PRISM, if there are more symbols than can fit on the screen, scroll the screen up by using the cursor movement keys. Refer to your *PRISM System User Manual* for more information on adding, defining, editing, and saving and restoring symbols.

Table 2-1 shows the name, bit pattern, and meaning for the symbols in the Bus group symbol table. The Bus group symbol table file name is 1553_BUS for the 92DM930 and 1553_Y for the 32DM930.

Table 2-1 Bus Group Symbol Table Definitions

Symbol	Bus Group Value		Meaning
	A_Active	B_Active	
Bus_A	1	0	Bus A was the active bus
Bus_B	0	1	Bus B was the active bus
Both_A_B	1	1	Both buses were active (error condition)
Neither	0	0	Neither bus was active (error condition)
Any_Bus	X	X	Either bus active (for use in triggering)

Table 2-2 shows the name, and bit pattern for the symbols in the Control group symbol table. The Control group symbol table file name is 1553_CTL for the 92DM930 and 1553_Y for the 32DM930.

Table 2-2 Control Group Symbol Table Definitions

PRISM Symbol	DAS 9200 Symbol	Control Group Value Sync Type Address 15 Address 14 Address 13 Address 12 Address 11 Address 10 Address 9 Address 8 Address 7 Address 6 Address 5 Address 4 Address 3 Address 2 Address 1 Address 0
00_Com_St	R/T 00: Command/Status	0 0 0 0 0 0 X X X X X X X X
01_Com_St	R/T 01: Command/Status	0 0 0 0 0 1 X X X X X X X X
02_Com_St	R/T 02: Command/Status	0 0 0 0 1 0 X X X X X X X X
03_Com_St	R/T 03: Command/Status	0 0 0 0 1 1 X X X X X X X X
04_Com_St	R/T 04: Command/Status	0 0 0 1 0 0 X X X X X X X X
05_Com_St	R/T 05: Command/Status	0 0 0 1 0 1 X X X X X X X X
06_Com_St	R/T 06: Command/Status	0 0 0 1 1 0 X X X X X X X X
07_Com_St	R/T 07: Command/Status	0 0 0 1 1 1 X X X X X X X X
08_Com_St	R/T 08: Command/Status	0 0 1 0 0 0 X X X X X X X X
09_Com_St	R/T 09: Command/Status	0 0 1 0 0 1 X X X X X X X X
10_Com_St	R/T 10: Command/Status	0 0 1 0 1 0 X X X X X X X X
11_Com_St	R/T 11: Command/Status	0 0 1 0 1 1 X X X X X X X X
12_Com_St	R/T 12: Command/Status	0 0 1 1 0 0 X X X X X X X X

Table 2-2 Control Group Symbol Table Defintions (cont.)

PRISM Symbol	DAS 9200 Symbol	Control Group Value Sync Type Address 15 Address 14 Address 13 Address 12 Address 11 Address 10 Address 9 Address 8 Address 7 Address 6 Address 5 Address 4 Address 3 Address 2 Address 1 Address 0
13_Com_St	R/T 13: Command/Status	0 0 1 1 0 1 X X X X X X X X X X X X
14_Com_St	R/T 14: Command/Status	0 0 1 1 1 0 X X X X X X X X X X X X
15_Com_St	R/T 15: Command/Status	0 0 1 1 1 1 X X X X X X X X X X X X
16_Com_St	R/T 16: Command/Status	0 1 0 0 0 0 X X X X X X X X X X X X
17_Com_St	R/T 17: Command/Status	0 1 0 0 0 1 X X X X X X X X X X X X
18_Com_St	R/T 18: Command/Status	0 1 0 0 1 0 X X X X X X X X X X X X
19_Com_St	R/T 19: Command/Status	0 1 0 0 1 1 X X X X X X X X X X X X
20_Com_St	R/T 20: Command/Status	0 1 0 1 0 0 X X X X X X X X X X X X
21_Com_St	R/T 21: Command/Status	0 1 0 1 0 1 X X X X X X X X X X X X
22_Com_St	R/T 22: Command/Status	0 1 0 1 1 0 X X X X X X X X X X X X
23_Com_St	R/T 23: Command/Status	0 1 0 1 1 1 X X X X X X X X X X X X
24_Com_St	R/T 24: Command/Status	0 1 1 0 0 0 X X X X X X X X X X X X
25_Com_St	R/T 25: Command/Status	0 1 1 0 0 1 X X X X X X X X X X X X
26_Com_St	R/T 26: Command/Status	0 1 1 0 1 0 X X X X X X X X X X X X
27_Com_St	R/T 27: Command/Status	0 1 1 0 1 1 X X X X X X X X X X X X
28_Com_St	R/T 28: Command/Status	0 1 1 1 0 0 X X X X X X X X X X X X
29_Com_St	R/T 29: Command/Status	0 1 1 1 0 1 X X X X X X X X X X X X
30_Com_St	R/T 30: Command/Status	0 1 1 1 1 0 X X X X X X X X X X X X
BC_Com_St	Broadcast Command/Status	0 1 1 1 1 1 X X X X X X X X X X X X
00_Data	R/T 00: Data	1 0 0 0 0 0 X X X X X X X X X X X X
01_Data	R/T 01: Data	1 0 0 0 0 1 X X X X X X X X X X X X
02_Data	R/T 02: Data	1 0 0 0 1 0 X X X X X X X X X X X X
03_Data	R/T 03: Data	1 0 0 0 1 1 X X X X X X X X X X X X
04_Data	R/T 04: Data	1 0 0 1 0 0 X X X X X X X X X X X X
05_Data	R/T 05: Data	1 0 0 1 0 1 X X X X X X X X X X X X
06_Data	R/T 06: Data	1 0 0 1 1 0 X X X X X X X X X X X X
07_Data	R/T 07: Data	1 0 0 1 1 1 X X X X X X X X X X X X
08_Data	R/T 08: Data	1 0 1 0 0 0 X X X X X X X X X X X X
09_Data	R/T 09: Data	1 0 1 0 0 1 X X X X X X X X X X X X
10_Data	R/T 10: Data	1 0 1 0 1 0 X X X X X X X X X X X X
11_Data	R/T 11: Data	1 0 1 0 1 1 X X X X X X X X X X X X
12_Data	R/T 12: Data	1 0 1 1 0 0 X X X X X X X X X X X X
13_Data	R/T 13: Data	1 0 1 1 0 1 X X X X X X X X X X X X
14_Data	R/T 14: Data	1 0 1 1 1 0 X X X X X X X X X X X X
15_Data	R/T 15: Data	1 0 1 1 1 1 X X X X X X X X X X X X
16_Data	R/T 16: Data	1 1 0 0 0 0 X X X X X X X X X X X X
17_Data	R/T 17: Data	1 1 0 0 0 1 X X X X X X X X X X X X

Table 2-2 Control Group Symbol Table Defintions (cont.)

PRISM Symbol	DAS 9200 Symbol	Control Group Value Sync Type Address 15 Address 14 Address 13 Address 12 Address 11 Address 10 Address 9 Address 8 Address 7 Address 6 Address 5 Address 4 Address 3 Address 2 Address 1 Address 0
18_Data	R/T 18: Data	1 1 0 0 1 0 X X X X X X X X X X
19_Data	R/T 19: Data	1 1 0 0 1 1 X X X X X X X X X X
20_Data	R/T 20: Data	1 1 0 1 0 0 X X X X X X X X X X
21_Data	R/T 21: Data	1 1 0 1 0 1 X X X X X X X X X X
22_Data	R/T 22: Data	1 1 0 1 1 0 X X X X X X X X X X
23_Data	R/T 23: Data	1 1 0 1 1 1 X X X X X X X X X X
24_Data	R/T 24: Data	1 1 1 0 0 0 X X X X X X X X X X
25_Data	R/T 25: Data	1 1 1 0 0 1 X X X X X X X X X X
26_Data	R/T 26: Data	1 1 1 0 1 0 X X X X X X X X X X
27_Data	R/T 27: Data	1 1 1 0 1 1 X X X X X X X X X X
28_Data	R/T 28: Data	1 1 1 1 0 0 X X X X X X X X X X
29_Data	R/T 29: Data	1 1 1 1 0 1 X X X X X X X X X X
30_Data	R/T 30: Data	1 1 1 1 1 0 X X X X X X X X X X
BC_Data	Broadcast Data	1 1 1 1 1 1 X X X X X X X X X X
RT_00	R/T 00	X 0 0 0 0 0 X X X X X X X X X X
RT_01	R/T 01	X 0 0 0 0 1 X X X X X X X X X X
RT_02	R/T 02	X 0 0 0 1 0 X X X X X X X X X X
RT_03	R/T 03	X 0 0 0 1 1 X X X X X X X X X X
RT_04	R/T 04	X 0 0 1 0 0 X X X X X X X X X X
RT_05	R/T 05	X 0 0 1 0 1 X X X X X X X X X X
RT_06	R/T 06	X 0 0 1 1 0 X X X X X X X X X X
RT_07	R/T 07	X 0 0 1 1 1 X X X X X X X X X X
RT_08	R/T 08	X 0 1 0 0 0 X X X X X X X X X X
RT_09	R/T 09	X 0 1 0 0 1 X X X X X X X X X X
RT_10	R/T 10	X 0 1 0 1 0 X X X X X X X X X X
RT_11	R/T 11	X 0 1 0 1 1 X X X X X X X X X X
RT_12	R/T 12	X 0 1 1 0 0 X X X X X X X X X X
RT_13	R/T 13	X 0 1 1 0 1 X X X X X X X X X X
RT_14	R/T 14	X 0 1 1 1 0 X X X X X X X X X X
RT_15	R/T 15	X 0 1 1 1 1 X X X X X X X X X X
RT_16	R/T 16	X 1 0 0 0 0 X X X X X X X X X X
RT_17	R/T 17	X 1 0 0 0 1 X X X X X X X X X X
RT_18	R/T 18	X 1 0 0 1 0 X X X X X X X X X X
RT_19	R/T 19	X 1 0 0 1 1 X X X X X X X X X X
RT_20	R/T 20	X 1 0 1 0 0 X X X X X X X X X X
RT_21	R/T 21	X 1 0 1 0 1 X X X X X X X X X X
RT_22	R/T 22	X 1 0 1 1 0 X X X X X X X X X X

Table 2-2 Control Group Symbol Table Defintions (cont.)

PRISM Symbol	DAS 9200 Symbol	Control Group Value Sync Type Address 15 Address 14 Address 13 Address 12 Address 11 Address 10 Address 9 Address 8 Address 7 Address 6 Address 5 Address 4 Address 3 Address 2 Address 1 Address 0
RT_23	R/T 23	X 1 0 1 1 1 X X X X X X X X X X X X
RT_24	R/T 24	X 1 1 0 0 0 X X X X X X X X X X X X
RT_25	R/T 25	X 1 1 0 0 1 X X X X X X X X X X X X
RT_26	R/T 26	X 1 1 0 1 0 X X X X X X X X X X X X
RT_27	R/T 27	X 1 1 0 1 1 X X X X X X X X X X X X
RT_28	R/T 28	X 1 1 1 0 0 X X X X X X X X X X X X
RT_29	R/T 29	X 1 1 1 0 1 X X X X X X X X X X X X
RT_30	R/T 30	X 1 1 1 1 0 X X X X X X X X X X X X
Broadcast	Broadcast	X 1 1 1 1 1 X X X X X X X X X X X X

The symbols listed in Table 2-2 are divided into three groups. The first group is for Receiver/Transmitter commands or status words (R/T 30: Command/Status for example). Receiver/Transmitter data words are contained in the next group. The final group is included for use in the trigger setup of the data acquisition module. They allow you to trigger on any transaction, command/status or data, of a specific receiver/transmitter.

Table 2-3 shows the name, bit pattern, and meaning for the symbols in the Errors group symbol table. The Errors group symbol table file name is 1553_ERR for the 92DM930 and 1553_Y for the 32DM930.

Table 2-3: Errors Group Symbol Table Definitions

Symbol	Errors Group Value High Bit Count Low Bit Count 17 Bit Flag Parity Error Manchester II Encoding Error	Meaning
HiBitCnt	1 0 0 0 0	More than 17 bits were in the current word
LoBitCnt	0 1 0 0 0	Less than 17 bits were in the current word
Parity	0 0 1 1 0	Parity error
ManIIErr	0 0 X 0 1	Manchester II encoding error
	0 0 X 0 0	There were no errors
Multiple	X X X X X	There was more than one error

If you are using 1553 Mode control, a symbol table is included for your use with the 92DM930 support product; the symbol table file name is 1553_Mode. This table contains about 900 symbols and is too long to appear in this manual.

Refer to *Displaying Channel Groups Symbolically* in this section for more information on displaying symbolic values. Refer also to *Searching Through 92DM930 Data* in this section for information on how to use symbol table values for 92A96 data searches.

Copying and Editing Predefined 92DM930 Symbol Tables. You cannot directly edit any DAS 9200 symbol tables supplied by 92DM930 support. But you can make a copy of a predefined symbol table and then edit the copy for your specific use.

To create a new symbol table, follow these steps:

1. Select the Symbol Editor menu from the Menu Selection overlay.
2. Press F2: FILE FUNCTIONS.
3. Select Open File in the Function field, and press Return.
4. Select New File in the Edit Status field, and press Return.
5. Enter a new symbol table file name in the New File Name field.
6. Select Pattern or Range in the Table Type field to match the symbol table you are copying, and press Return.
7. Press F5: EXECUTE FUNCTION.
8. Select Merge Files in the Function field, and press Return.
9. Select the file to base your new symbol table on, such as the 1553_CTL file.
10. Press F5: EXECUTE FUNCTION.
11. Press F8: EXIT & SAVE.
12. Edit the file as desired keeping the following in mind:
    - If the new symbol has fewer don't cares than an existing symbol, it must be placed ahead of the existing symbol.
    - If the new symbol has more don't cares than an existing symbol, it must be placed after the existing symbol.
    - Do not duplicate symbol names. Also refer to your *DAS 9200 System User Manual* for more information on editing the symbol table.
13. Select the Channel menu from the Menu Selection overlay.
14. Change the file name of the symbol table for the Control group (or whichever group's symbol table you are replacing) to the one specified in step 5.

Acquiring and Displaying Data

This part of this section describes how to acquire data and view it in the State Table display of the DAS 9200 or PRISM. These descriptions include:

- acquiring data
- displaying groups symbolically
- searching through data on DAS 9200
- printing data from DAS 9200
- viewing the demonstration reference memory on DAS 9200
- restoring and viewing the demonstration reference memory on PRISM

Acquiring Data

Once you load the 1553 bus support, choose a clocking mode, and specify the trigger, you are ready to acquire and display data.

On the DAS 9200, press the F1: START acquisition key to begin the acquisition. You can press the F1: STOP key at any time to stop acquisition.

On the PRISM, press the Start acquisition key to begin the acquisition. You can press the Stop key at any time to stop acquisition.

If you have any problems acquiring data, refer to *Appendix A: Error Messages and Acquisition Problems.*

Figure 2-1 shows a generic example of 1553 data from a DAS 9200 State menu display.

Sequence	Control	Data	Bus	Errors
432	R/T 01: Command/Status	007F0	Bus_A	
433	R/T 01: Data	12345	Bus_A	
434	R/T 01: Data	1A4CC	Bus_A	
435	R/T 01: Data	10004	Bus_A	
436	R/T 01: Data	1A4C4	Bus_A	
437	R/T 01: Data	10040	Bus_A	Parity
438	R/T 03: Command/Status	01fE0	Bus_B	
439	R/T 03: Data	1850F	Bus_B	
440	R/T 03: Data	1A4BC	Bus_B	

Figure 2-1: State Menu Display of 1553 Bus Data

Data Display

Data acquired from the 1553 probe adapter is displayed in the DAS 9200 State menu or the PRISM State Table display.

92A96 State Format Definition Overlay

The State Format Definition overlay allows you to make optional display selections for the State menu and tailor it for your applications. Details on selecting State display options are contained in the *92A96 Module User Manual.*

You can use this overlay to do the following:

- display and define the format of the timestamp
- change the position of any channel group in the display
- change the radix for any channel group
- choose which symbol tables are to be used when channel groups are displayed symbolically

Timestamp. You can display the timestamp as an Absolute, Relative, or Delta value. You can also set the timestamp display to Off.

Timestamp values show the amount of time that has elapsed between data samples. An Absolute timestamp shows the amount of time elapsed between when the acquisition was started (after pressing F1: START) and each subsequent data sample. A Relative timestamp shows the amount of time elapsed between successive samples. A Delta timestamp shows the amount of time elapsed between the sample with the delta user mark and each previous or subsequent data sample.

32GPX State Display

Acquired data is displayed in State format in the PRISM State Table display.

To reduce the amount of time required for lengthy operations, such as searches for rare values, you should convert the acquisition memory to a reference memory (Acqmem to Refmem), and change the Memory Displayed field in the State table menu to REFMEM.

The PRISM system software provides functions you can access from the State Table display. These functions are:

F1: Search Up or Down. You can search for specific data starting from the cursor position and moving toward the beginning (up) or the end of acquired data (down).

Change Cursors. You can select cursor 1 or 2 to move up and down the data display by pressing F2: Change Cursors. Both data cursors control data scrolling when they are active.

F3: Acqmem To Refmem. You can transfer the acquisition memory to the reference memory.

F5: Search Def. You can search for specific data within your acquired data.

F6: Auxiliary Data. You can view the values of the counters and timers at the time data was acquired.

F7: Display Formats. You can turn on timestamps to measure the time between a sample and the trigger point, or to measure the time between two samples.

NOTE. *Changing polarity (positive or negative) for any channel group defined by the support package will cause incorrect data displays.*

F8: Split Display. You can split the display screen into two halves. Each half is called a pane. You can view any setup or display menu in a pane.

Refer to your *PRISM System User Manual* for more information on function keys.

Transferring Acquisition Memory to Reference Memory. You can transfer the current acquisition memory and transfer it to the reference memory by using F3: Acqmem to Refmem of the Display menu.

NOTE. *Data in the reference memory is overwritten each time F3 is pressed. To save a memory to a file, use the Save Acqmem or Save Refmem operation in the Save/Restore Utility menu. For more information, refer to your system user manual.*

Viewing Data from Two or More 32GPX Modules. If you are acquiring data from two or more 32GPX Modules, you will not be able to view all sets of mnemonics unless you turn off all other channel groups besides Data. Use the procedure described in *Displaying Off-Screen 32GPX Channel Groups.*

Displaying Off-Screen 32GPX Channel Groups. When the number of channel groups to display exceeds the amount of screen space, arrows (→) show on the right side of the screen. The arrows indicate that there are channel groups turned on in the Display Formats submenu, but there is not enough room to display them. To display a hidden group, do the following:

1. Place the cursor in the First Group Displayed field.
2. Press the Return key to display the popup menu and select the group you want displayed. Press Return again.

To turn off a channel group (that is, remove it from the display), do the following:

1. Press F7: Display Formats.

2. Move the cursor to the channel group that you would like to remove from the display and select OFF.

3. Press F8: Exit Submenu.

Displaying Channel Groups Symbolically

Any channel group can be displayed as symbolic values in the State Table display similar to the way the Control group can be displayed as symbolic values.

92A96 Module. You can use the DAS 9200 Symbol Editor menu to create symbol tables in which symbols are assigned to various channel group values (ranges or patterns). You can then change the radix of the channel group in the State menu using the State Format Definition overlay, and select the symbol table you created to use for display or triggering purposes.

32GPX Module. To display symbols, follow these steps:

1. Press Dspl to enter the Display menu.

2. Press F7: Display Formats to display the submenu.

3. Move the cursor to the Radix field of your chosen group and select PATTERN or RANGE.

4. Press F8: Exit Submenu.

The symbols appear within the display column of the chosen channel group (provided that the acquired value exists in your program). You can also create range symbol tables in which symbols are assigned to a specific range of values for any channel group (such as Address). To add a symbol range to any group, refer to the *PRISM System User Manual.*

92DM930 Reference Memory

A demonstration reference memory file is provided so you can see an example of how your 1553 bus cycles look when they are displayed. Viewing the reference memory is not a requirement for preparing the 92A96 Module for use. You can view the reference memory file without connecting the DAS 9200 to your SUT.

To view the 1553_Demo Refmem, follow these steps:

1. Press the Select Menu key and select the 1553_Demo file from the Refmem column.

2. Select the State menu and press Return.

You can affect the display of the displayed data from the State Format Definition overlay, which you can access through the State menu. An example symbol table is provided that shows how the 1553 bus display can be customized. Selecting the 1553_Demo symbol table for the Control channel group in the State Format Definition overlay will reformat the display with custom Command/Status word definitions.

If there is not enough free space on the hard disk, you can delete the 1553_Demo file. It is not necessary to the operation of the support package.

32DM930 Reference Memory

A demonstration reference file is provided so you can see the way the 1553 bus cycles look when they are formatted for display. In this discussion, you will restore and view the reference memory. Viewing the reference memory is not a requirement for preparing the 32GPX Module for use. You can view the reference memory file without connecting the PRISM to your SUT.

To restore and view the reference memory, you must load 1553 support software. To load software, refer to the 32DM930 loading procedures in the *Getting Started* section. To restore and view the reference memory, follow these steps::

1. Select the Save/Restore menu in the Utility menu group.
2. Select Restore Refmem in the Select Operation field.
3. Select the following in the Source fields:
   - HARD (or FLOPPY) Disk
   - 1553 Directory
   - 1553_R
4. Press F1: Execute Command. A message appears at the top of the screen telling you whether the reference memory was successfully restored.

NOTE. *If the message tells you the operation failed, you may need to unload applications from memory and try again. There may not be enough free memory to restore the reference memory. If the operation fails again, refer to* Appendix A: Error Messages and Acquisition Problems.

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5. Press the Dspl MENU key.
6. Select REFMEM in the Memory Displayed field using the SELECT keys.
7. Move the cursor to the Data Format field and press a SELECT key to display in State format.
8. An example symbol table is provided that shows how the 1553 bus display can be customized. Selecting the 1553_Demo symbol table for the Control channel group in the F7: Display Formats submenu will reformat the display with custom Command/Status word definitions

General Purpose Analysis

You may wish to perform general purpose (timing) analysis on your 1553 bus system. When performing hardware analysis, you will want to use the data acquisition module to acquire data with a finer resolution. When more data samples are taken in a given period of time, the resolution in the Timing display increases, letting you see signal activity that would otherwise go undetected.

This part of this section provides information on the following:

- timing analysis
- simultaneous state and timing acquisition (32GPX)
- state analysis
- displaying data
- supplied Timing Format Definition file (92A96)

There often is a need to view 32GPX data in a split screen display with state data in one half and timing data in the other. Do not disconnect any of the probe cables or interface housings if you are analyzing data in this manner.

92A96 Clocking

To change the data sampling rate, use the 92A96 Clock menu.

When using the 92A96 Module for timing analysis, you will want to use the Internal or External clocking modes. The Internal clock selection can sample data up to 100 MHz, which has a 10 ns resolution between samples. The External clock selection samples data on every active clock edge on the 92A96 clock inputs up to 100 MHz.

The default clocking mode is Custom when 1553 bus support is used; you will need to change it to either Internal or External. Your *92A96 Module User Manual* contains an in-depth description of Internal and External clocking.

Custom Clocking. Custom clocking only stores one data sample for each bus transaction. Custom clocking also time-aligns certain signals that otherwise would be skewed relative to the current bus transaction. This clocking selection is generally unproductive for timing analysis. Refer to the *Specifications* section for a more in-depth description of how Custom clocking is used with the probe adapter to acquire data.

Internal Clocking. When you select Internal as the clocking mode, the 92A96 Module stores one data sample as often as every 10 ns (100 MHz). This clocking selection is commonly referred to as asynchronous.

Two typical uses of Internal clocking might be to verify that inter-word gaps and inter-message response times are within the tolerances specified in MIL-STD 1553A/B.

It is possible to acquire asynchronous data at rates of 200 MHz and 400 MHz. The faster the 92A96 Module acquires data, the fewer channels it can acquire data on. A single 92A96 Module can acquire data on 24 channels at 400 MHz or 2.5 ns resolution. Refer to your 92A96 *Module User Manual* for information on sampling data at speeds faster than 100 MHz.

NOTE. *Switching to the 200 MHz or 400 MHz Internal Clocking modes will require moving probe connections to the 1553 probe adapter. The channels used for high speed Internal Clocking are not connected to the relevant probe adapter outputs.*

External Clocking. When you select External as the clocking mode, the 92A96 Module acquires and stores data based on a clock channel up to 100 MHz. This clocking selection is commonly referred to as synchronous.

32GPX Timing Analysis

To acquire data for timing analysis you may want to use Transitional or High-Resolution clocking. Transitional clocking clocks in data every 5 ns on TimeBase A and every 10 ns on TimeBase B. Samples are not stored unless one or more channels has a transition. To acquire data transitionally, you can make one of two selections:

- Select a timing trigger application, or
- Select Transitional in the TimeBase A field of the Setup menu

High-Resolution clocking causes the 32GPX Module to sample data every 1 ns. Only data assigned to the sections C2 and C3 are sampled. No other groups are sampled.

The probe adapter uses a decoder to convert the 1553 serial data stream to parallel words. Performing a timing analysis of the decoder outputs will not yield any relevant information on 1553 bus signal timing.

The Timing channel group contains two signals, RX Data and Sync Detect, for use in making timing measurements of inter-word gaps and inter-message response times. RX Data is a TTL version of the raw 1553 serial data stream. Sync Detect is a decoder output which pulses high whenever a valid 1553 sync pattern has been detected.

When analyzing serial data streams in the timing diagram display it is often hard to visually identify the start of a 1553 word. The Sync Detect signal provides a convenient method of finding a word's sync pattern. When the decoder asserts Sync Detect at the start of a new word it will also clear the parallel word output latched from the previous word. Finding specific 1553 words in the display can be accomplished by looking for active Sync Detect signals and examining the Control group value just prior to the assertion of Sync Detect.

Once you have identified where you are in the timing display you can make measurements of gaps and response times with the dual timing cursors. The cursors should be aligned with the logic state transitions of the RX Data signal. Positioning the first cursor on the last bit (the parity bit) of a word, changing the active cursor, and positioning the second cursor to the beginning of the next word's sync pattern will provide an inter-word gap measurement.

32GPX Simultaneous State and Timing Analysis

With the 32GPX Module you can acquire data for state and timing displays at the same time. To acquire timing data you must have channel groups assigned to TimeBase B. The default has the channels within the Control section double-assigned to TimeBase B and A. You can assign the same channels to TimeBase A and TimeBase B without changing or adding physical connections. After you have assigned channels, select a trigger application that sets TimeBase A to chip name and TimeBase B to Transitional.

Once data is acquired, you can view state data in the State Table display menu or timing traces in the Timing Diagram display menu. You can also use the Split Display function and view both menus at the same time.

32GPX State Analysis

To acquire data for state analysis, you may want to use Synchronous clocking. Synchronous clocking logs in data using the SUT's clock. To select Synchronous clocking, you must use a programmable trigger.

When you select Synchronous clocking, you must define a clocking equation (or use the default) to acquire data. Synchronous clocking equations are defined in the Synchronous Clocking submenu. To display this menu, press F4: Sync Clocking. Synchronous clocking is available only on TimeBase A. For specific information on defining clocking equations, refer to the *32GPX Acquisition Module User Manual.*

After acquiring data with synchronous clocking, you can view it in either the state display or the timing display. Once in the timing display, you can view data in a bus form. Refer to *Bus Forms* later in this section.

Timing Display

General purpose analysis requires that you view data in either the State or Timing display menus (or both). In the Timing display, every channel is shown as a waveform, and groups of channels (such as the Data bus) are shown as bus forms.

92A96 Module. A predefined Timing Format Definition overlay file, part of the 1553 bus support, is available for you to use when displaying data in the Timing format. The 1553_96 file is installed on the DAS 9200 with the support software.

The 1553_96 Timing Format Definition file displays the Control group as a bus form containing bus values instead of as individual timing waveforms. This group is followed by other important signals.

If you change and replace the timing format file, you must rename the file. If you do not rename the file, you will receive an error message saying the timing format file failed to verify when you press F5: VERIFY SOFTWARE in the HW/SW Configuration menu.

To select the supplied 92DM930 Timing Format Definition file, follow these steps:

1. Select the Timing menu and press F5: DEFINE FORMAT.
2. Press F5: RESTORE FORMAT.
3. Select 1553_96 and press the Return key.
4. Press F8: EXIT & SAVE to return to the Timing menu.

Refer to the channel assignment tables in the *Specifications* section for the lists of individual channels and their 1553 probe adapter signal names.

The probe adapter uses a decoder to convert the 1553 serial data stream to parallel words. Performing a timing analysis of the decoder outputs will not yield any relevant information on 1553 bus signal timing.

The Timing channel group contains two signals, RX Data and Sync Detect, for use in making timing measurements of inter-word gaps and inter-message response times. RX Data is a TTL version of the raw 1553 serial data stream. Sync Detect is a decoder output which pulses high whenever a valid 1553 sync pattern has been detected.

When analyzing serial data streams in the timing diagram display it is often hard to visually identify the start of a 1553 word. The Sync Detect signal provides a convenient method of finding a word's sync pattern. When the decoder asserts Sync Detect at the start of a new word it will also clear the parallel word output latched from the previous word. Finding specific 1553 words in the display can be accomplished by looking for active Sync Detect signals and examining the Control group value just prior to the assertion of Sync Detect.

Once you have identified where you are in the timing display you can make measurements of gaps and response times with the dual timing cursors. The cursors should be aligned with the logic state transitions of the RX Data signal. Positioning the cursor on the last bit (the parity bit) of a word, marking that location with the Delta Mark, and then positioning the cursor to the beginning of the next word's sync pattern will provide an inter-word gap measurement.

This measurement technique requires that Delta timestamp display be enabled in the State display. Refer to the *92A96 Module User Manual* for information on enabling state table timestamp displays. For Timing displays, this mode is selected in the Timing Format Definition overlay. Refer to the *92A96 Module User Manual* for information on enabling cursor-to-delta mark timing readouts.

NOTE. *Prior to acquiring data for timing measurements the Timing channel group radix in the Channel menu must be changed from OFF.*

State Display

In the State menu, all channel group values are shown based on the selected radix in the Channel menu or the State Format Definition overlay.

If you want to display other channel groups (such as Misc), access the State Format Definition overlay and change the radix for the group from Off to Hex, Bin, or Oct. This overlay also allows you to add the Timestamp group (and change the radix) to the data display.

Searching Through 92A96 State and Timing Data

To search through 92A96 data, you can use either the Timing Search Definition overlay or the State Search Definition overlay. You can use these overlays and search through data as described in your *92A96 Module User Manual.*

Before performing a search in the Timing menu, be sure to check the State Format Definition overlay and make sure the channels on which you want to conduct the search will be displayed (radix is not Off). Channels in the Timing menu cannot be searched on unless they can also be displayed in the State menu.

Printing 92A96 State and Timing Data

To print 92A96 state data, you can use the State Table Print overlay. To access this overlay, press the Shift and Print keys at the same time from the State menu.

To print timing data, you can use the Timing Print overlay. To access this overlay, press the Shift and Print keys at the same time from the Timing menu.

For detailed information on the State Table Print overlay or the Timing Print overlay, refer to your *92A96 Module User Manual.*

Specifications

This section contains the following information:

- brief description of the probe adapter
- channel assignment tables
- description of how the 92A96 or 32GPX Module acquires chip name signals
- list of accessible chip name signals and extra 92A96 or 32GPX channels

Probe Adapter Description

The probe adapter is a nonintrusive piece of hardware that allows the 92A96 or 32GPX to acquire data from a 1553 bus in its own operating environment with little affect, if any, on that system. Refer to the DAS 9200 and PRISM overview figures in the *Getting Started* section while reading the next paragraph.

The probe adapter consists of a circuit board with decoding circuitry. The probe adapter connects to the 1553 bus through twinaxial cables. Signals from the 1553 bus flow to the probe adapter decoder circuitry and then to the probes (podlet groups). The signals flow through the probe signal leads to either the 92A96 or 32GPX Acquisition Module.

All circuitry on the probe adapter is powered from the provided AC to +5 V DC adapter.

The probe adapter contains jumpers that need to be in certain positions for proper operation. A description of configuring the probe adapter is located in the *Operating Basics* section.

Channel Assignments

Channel assignments shown in Table 3-1 through Table 3-6 use the following conventions:

- all signals are required for correct display unless indicated otherwise
- channels are shown starting with the most significant bit (MSB) descending to the least significant bit (LSB)

Table 3-1 shows the 92A96 and 32GPX section and channel assignments for the Control group, and the probe adapter signal to which each channel connects. The default display radix is SYM for 92DM930 and PATTERN for 32DM930.

Table 3-1: Control Group Channel Assignments

Acq. Module Bit Order and Channel			1553 Probe Adapter
Bit No.	92A96	32GPX	Signal Name
16	C2:0	C2:0	Sync Type
15	A1:7	A1:7	RX Data:15
14	A1:6	A1:6	RX Data:14
13	A1:5	A1:5	RX Data:13
12	A1:4	A1:4	RX Data:12
11	A1:3	A1:3	RX Data:11
10	A1:2	A1:2	RX Data:10
9	A1:1	A1:1	RX Data:9
8	A1:0	A1:0	RX Data:8
7	A0:7	A0:7	RX Data:7
6	A0:6	A0:6	RX Data:6
5	A0:5	A0:5	RX Data:5
4	A0:4	A0:4	RX Data:4
3	A0:3	A0:3	RX Data:3
2	A0:2	A0:2	RX Data:2
1	A0:1	A0:1	RX Data:1
0	A0:0	A0:0	RX Data:0

Table 3-2 shows the 92A96 and 32GPX section and channel assignments for the Data group, and the probe adapter signal to which each channel connects. The default display radix is HEX.

NOTE. *The channels in the Data channel group are NOT actually connected to the 1553 probe adapter. These channels have data routed into their storage RAM internally to the 92A96 or 32GPX Modules. The source of data stored for these channels is demultiplexed from the A1:7-0 and A0:7-0 channels during Custom clocking only.*

Internal and External acquisitions on the DAS 9200 and Transitional and High Speed acquisitions on the PRISM will not see any data bus activity.

Table 3-2: Data Group Channel Assignments

Acq. Module Bit Order and Channel			1553 Probe Adapter
Bit No.	92A96	32GPX	Signal Name
15	D1:7	D1:7	RX Data:15
14	D1:6	D1:6	RX Data:14
13	D1:5	D1:5	RX Data:13
12	D1:4	D1:4	RX Data:12
11	D1:3	D1:3	RX Data:11
10	D1:2	D1:2	RX Data:10
9	D1:1	D1:1	RX Data:9
8	D1:0	D1:0	RX Data:8
7	D0:7	D0:7	RX Data:7
6	D0:6	D0:6	RX Data:6
5	D0:5	D0:5	RX Data:5
4	D0:4	D0:4	RX Data:4
3	D0:3	D0:3	RX Data:3
2	D0:2	D0:2	RX Data:2
1	D0:1	D0:1	RX Data:1
0	D0:0	D0:0	RX Data:0

Table 3-3 shows the 92A96 and 32GPX section and channel assignments for the Errors group, and the probe adapter signal to which each channel connects. The default display radix is SYM for 92DM930 and PATTERN for 32DM930.

Table 3-3: Errors Channel Assignments

Acq. Module Bit Order and Channel			1553 Probe Adapter
Bit No.	92A96	32GPX	Signal Name
4	C2:5	C2:5	High Bit Count
3	C2:4	C2:4	Low Bit Count
2	C2:6	C2:6	17 Bit Flag
1	C2:7	C2:7	Parity Error
0	C2:3	C2:3	Manchester II Encoding

Table 3-4 shows the 92A96 and 32GPX section and channel assignments for the Bus group, and the probe adapter to which each channel connects. The default display radix is SYM for 92DM930 and PATTERN for 32DM930.

Table 3-4: Bus Group Channel Assignments

Acq. Module Bit Order and Channel			1553 Probe Adapter
Bit No.	92A96	32GPX	Signal Name
1	C2:1	C2:1	Bus A Active
0	C2:2	C2:2	Bus B Active

NOTE. *Signals listed in Tables 3-5 and 3-6 are generated by the BUS-1555 integrated circuit made by ILC Data Device Corporation inside the 1553 probe adapter. Data acquired on these channels could be useful if you are familiar with the operation of that device.*

Table 3-5 shows the 92A96 and 32GPX section and channel assignments for the Misc group, and the probe adapter signal to which each channel connects. The default display radix is OFF. The signals in this channel group are not required for display.

Table 3-5: Misc Group Channel Assignments

Acq. Module Bit Order and Channel			1553 Probe Adapter
Bit No.	92A96	32GPX	Signal Name
3	C3:1	C3:1	16 MHz
2	C3:4	C3:4	NRZ Data
1	C3:6	C3:6	Frame Pulse
0	C3:7	C3:7	Load Pulse

Table 3-6 shows the 92A96 and 32GPX section and channel assignments for the Timing group, and the probe adapter to which each channel connects. The default display radix is OFF. The signals in this channel group are not required for display.

Table 3-6: Timing Group Channel Assignments

Acq. Module Bit Order and Channel			1553 Probe Adapter
Bit No.	92A96	32GPX	Signal Name
1	C3:3	C3:3	TTL RX Data
0	C3:5	C3:5	Sync Detect

The 92A96 and 32GPX section and channel assignment for the clock channel (not part of any group) is CLK2. The CLK2 channel connects to the Load Pulse signal on the 1553 probe adapter. This channel is used only to clock in data: it is not acquired or displayed.

How Data is Acquired

This part explains how the acquisition module acquires 1553 bus signals using the 92DM930 or 32DM930 probe adapter and software. It also provides additional information on 1553 bus signals accessible on or not accessible on the probe adapter, and on extra 92A96 or 32GPX channels available for you to use for additional connections.

A special clocking program is loaded to the acquisition module every time the 1553 bus support is selected in the 92A96 Configuration menu or 32GPX Setup menu. In Custom (92A96) or 1553 (32GPX) clocking, the module's clocking state machine (CSM) generates one master sample for each 1553 serial word.

The 1553 bus decoder in the probe adapter pulses the signal (Load Pulse) connected to the acquisition card's clock at the end of every serial word. When the Load Pulse goes high the 92A96 or 32GPX will latch the outputs of the decoder as well as the current value of the acquisition card's timestamp counter.

Extra Channels

Table 3-8 lists extra 92A96 and 32GPX channels that are left after you have connected all the channels used by the support software. You can use these extra channels to make alternate connections to your SUT. You can also disconnect channels not required by support software to make alternate connections. Information preceding each channel assignment table in this section indicates if the channels are required by support software.

Table 3-8: Extra 92A96 and 32GPX Groups and Channels

92A96 Group	Channels	32GPX Group	Channels
A3	7-0	A3	7-0
A2	7-0	A2	7-0
D3	7-0	D3	7-0
D2	7-0	D2	7-0
C1	7-0		
C0	7-0		

Warning

The following servicing instructions are for use only by qualified personnel. To avoid personal injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer to General Safety Summary and Service Safety Summary prior to performing any service.

Maintenance

This section contains the following information:

- safety summary
- brief description of how the probe adapter works
- care and maintenance procedures

Service Safety Information

The following servicing safety information is for service technicians. Follow these safety precautions, along with the general precautions outlined in your *32GPX Acquisition Module User Manual*, while installing or servicing this product.

Do Not Service Alone. Do not perform internal service or adjustment on this product unless another person is present and able to give first aid and resuscitation.

Use Care When Servicing with Power On. To avoid personal injury from dangerous voltages, remove jewelry such as rings, watches, and other metallic objects before servicing. Do not touch the product's exposed connections and components while power is on.

Care and Maintenance

The probe adapter does not require scheduled or periodic maintenance. To maintain good electrical contact, keep the probe adapter free of dirt, dust, and contaminants. Also, ensure that any electrically conductive contaminants are removed.

Dirt and dust can usually be removed with a soft brush. For more extensive cleaning, use only a damp cloth. Abrasive cleaners and organic solvents should never be used.

CAUTION. *The semiconductor devices contained on the probe adapter are susceptible to static-discharge damage. To prevent damage, service the probe adapter only in a static-free environment.*

If the probe adapter is connected to your system, grasp the ground lug on the back of the DAS 9200 or PRISM mainframe to discharge your stored static electricity. If the probe adapter is not connected, touch any of the ground pins (row of square pins closest to the edge of the probe adapter circuit board labeled GND) to discharge stored static electricity from the probe adapter.

Always wear a grounding wrist strap, or similar device, while servicing the instrument.

Exercise care when soldering on a multilayer circuit board. Excessive heat can damage the through-hole plating or lift a run or pad and damage the board beyond repair. Do not apply heat for longer than three seconds. Do not apply heat consecutively to adjacent leads. Allow a moment for the board to cool between each operation.

If you must replace an electrical component on a circuit board, exercise extreme caution while unsoldering or soldering the new component. Use a pencil-type soldering iron of less than 18 watts and an approved unsoldering tool. Ensure that the replacement is an equivalent part by comparing the description as listed in the replaceable parts list.

Removing And Replacing Signal Leads

Refer to your 92A96 or 32GPX module user manual for information on how to replace signal leads.

Replaceable Parts List

This section contains a list of the components that are replaceable for the 92DM930 and 32DM930 1553 A/B bus support products. As described below, use this list to identify and order replaceable parts. This list also shows options.

Parts Ordering Information

Replacement parts are available from or through your local Tektronix, Inc service center or representative.

Changes to Tektronix instruments are sometimes made to accommodate improved components as they become available and to give you the benefit of the latest circuit improvements. Therefore, when ordering parts, it is important to include the following information:

- Part Number
- Instrument Type or Model Number
- Instrument Serial Number
- Instrument Modification Number, if applicable

If a part you order has been replaced with a different or improved part, your local Tektronix service center or representative will contact you concerning any change in the part number.

Change information, if any, is located at the rear of this manual.

Module Replacement

The 92DM930 and 32DM930 1553 A/B bus support product is serviced by module replacement so there are three options you should consider:

Module Exchange --- In some cases, you may exchange your module for a remanufactured module. These modules cost significantly less than new modules and meet the same factory specifications. For more information about the module exchange program, call 1-800-TEKWIDE (1-800-835-9433). Contact your local Tektronix Inc. service center or representative for repair assistance.

Module Repair --- You may ship your module to us for repair, after which we will return it to you.

New Modules --- You may purchase new replacement modules in the same way as other replacement parts.

Using the Replaceable Parts List

Item Names

In the Replaceable parts List, an Item Name is separated from the description by a colon (:). Because of space limitations, an Item Name may sometimes appear incomplete. For further Item Name identification, U.S. Federal Cataloging handbook H6-1 can be used where possible.

Abbreviations

Abbreviations conform to American National Standards Institute (ANSI) standard Y1.1.

CROSS INDEX - MFR. CODE NUMBER TO MANUFACTURER

Mfr. Code	Manufacturer	Address	City, State, Zip Code
S3109	FELLER	72 VERONICA AVE UNIT 4	SUMMERSET NJ 08873
TK0428	DLB INDUSTRIES		FRESNO CA
TK0435	LEWIS SCREW CO	4300 S RACINE AVE	CHICAGO IL 60609-3320
TK2427	A/D ELECTRONIC	2121 17TH AVE SE	BOTHELL WA 97021
TK2469	UNITREK CORPORATION	3000 LEWIS & CLARK WAY SUITE #2	VANCOUVER WA 98601
0B445	ELECTRI-CORD MFG CO INC	312 EAST MAIN ST	WESTFIELD PA 16950
00779	AMP INC	2800 FULLING MILL PO BOX 3608	HARRISBURG PA 17105
26742	METHODE ELECTRONICS INC	7447 W WILSON AVE	CHICAGO IL 60656-4548
53387	MINNESOTA MINING MFG CO	PO BOX 2963	AUSTIN TX 78769-2963
61857	SAN-O INDUSTRIAL CORP	91-3 COLIN DRIVE	HOLBROOK NY 11741
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON OR 97077-0001

Tektronix Part No.	Serial Number Effective Dscont	Qty	Name and Description	Mfr. Code	Mfr. Part No.
010-0572-00		1	PROBE ADAPTER; 1553 A/B BUS SUPPORT	80009	010057200
174-3179-00		2	CA ASSY,SP:DESCRETE,;CPD,3.22 AWG,1.4L,3, BAYONET,BNC TRIAX,JACK,REAR PNL MT X 1X3,0.1CTR,RCPT (W450, W455)	TK2469	174-3179-00
211-0626-00		4	SCREW,CAP:6-32 X 0.312,BTN HD,STL,BKOXD	TK0428	ORDER BY DESC
211-0658-00		4	SCR,ASSE WSHR:6-32 X 0.312,PNH,STL,POZ	TK0435	17691-300
333-4130-00		1	PANEL,FRONT:1553A/B BUS	80009	333413000
333-4131-00		1	PANEL,REAR:1553A/B BUS	80009	333413100
348-0048-00		4	FOOT,CAMERA:BLACK VINYL W/6-32 STUD	80009	348004800
380-1080-00		1	HOUSING,HALF:UPPER	80009	380108000
380-1081-00		1	HOUSING,HALF:LOWER	80009	380108100
671-3085-00		1	CIRCUIT BD ASSY:1553 A/B BUS SUPPORT PROBE ADAPTER:	80009	671308500
120-1956-00		2	TRANSFORMER:ISOLATION TRANSFORMER,41429 (T370,T770)	80009	120195600
131-4356-00		8	CONN,SHUNT:SHUNT/SHORTING,;FEMALE, 1 X 2,0.1 CTR,0.630 H,BLK,W/HANDLE,JUMPER (P580)	26742	9618-302-50
131-4530-00		2	CONN,HDR:PCB,;MALE,STR,1 X 3,0.1 CTR,0.230 MLG X 0.120 TAIL,30 GOLD,BD RETENTION (J380,J780)	00779	104344-1
131-5148-00		1	JACK,POWER DC:PCB,;MALE,RTANG,2.0 MM DIA PIN,7 MM H X 3.3 MM TAIL,3 COND,W/SWITCH,MTG POST,DC PWR JACK,1 AMP@12v (JR100)	TK2427	SCD-016
131-5268-00		2	CONN,HDR:PCB,;MALE,RTANG,2 X 40.1 CTR,0.235 MLG X 0.110 TAIL,30 GOLD (J500,J580)	53387	2480-5122-TB
156-0194-00		1	FUSE,WIRE LEAD:5A,125V,0.125 SEC (F100)	61857	SP5-5A LEAD TAP
161-0104-00		1	CA ASSY,PWR:3,18 AWG,98 L,250V/10AMP,98 INCH, RTANG,IEC320,RCPT X STR,NEMA 15-5P, W/CORDGRIP,US	0B445	MC6-3 CG86
			STANDARD ACCESSORIES		
070-8884-xx		1	MANUAL,TECH;INSTRUCTION,32/92DM930, 1553A/B BUS SUPPORT	80009	0708884xx
119-5061-00		1	POWER SUPPLY:25W;5V 5A,CONCENTRIC 2MM	80009	119506100

Tektronix Part No.	Serial Number Effective Dscont	Qty	Name and Description	Mfr. Code	Mfr. Part No.
			OPTIONS		
161-0154-00		1	CA ASSY,PWR:3,1.0MM SQ,250V/10A,2.5 METER, STR,IEC320,RCPT,SWISS	S3109	12-H05VVF3G 00-
161-0104-07		1	CA ASSY,PWR:3,1.0MM SQ,240V/10A,2.5 METER, RTANG,IEC320,RCPT X 13A,FUSED,UK PLUG,(13A FUSE),UNITED KINGDOM	S3109	ORDER BY DESC
161-0104-05		1	CA ASSY,PWR:3,1.0MM SQ,250V/10A,2.5 METER, RTANG,IEC320,RCPT,AUSTRALIA	S3109	SAA/3-OD3CCFC3X
161-0104-06		1	CA ASSY,PWR:3,1.0MM SQ,250V/10A,2.5 METER, STR,IEC320,RCPT,EUROPEAN	S3109	VIIGSOPO-HO5VVF

Appendix A: Error Messages and Acquisition Problems

This appendix describes error messages and acquisition problems that you may encounter while acquiring data. The first part only applies to the 92A96 Module and DAS 9200; the second part applies to the 32GPX and PRISM.

92A96 Module Error Messages

These error messages will appear in the Module Monitor menu when there are problems with acquiring data or satisfying the trigger program. The error messages are listed in alphabetical order; a description of the error message and the recommended solution follow the error message.

Slow Clock

This message appears when the active clock channel (or channels) is not changing, is typically changing at 1 ms or slower intervals, or one of the clock qualifiers is held in the wrong state. Check for the following:

1. The 1553 bus is powered on and running. Be sure the system is not halted.
2. 1553 Support is selected in the appropriate 92A96 Configuration menu.
3. Custom is selected in the Clock menu.
4. The connections between the 92A96 Module and the probe adapter are correct.
   - The clock and 8-channel probe connections between the interface housings and probe adapter are correct (module name, clock, section names, and channel numbers match), are properly oriented (GND connects to ground), and are fully engaged.
   - The connections between the interface housings and 32GPX probe cables have matched color labels, matched slot numbers, and are properly keyed.
   - The connections between the 32GPX probe cables and probe connectors have matched color labels, matched slot numbers, and are properly keyed.
5. No bent or missing pins on the 1553 bus socket or on either of the probe adapter sockets.

Waiting for Stop This message appears when the trigger condition is satisfied and memory is full but the Manual Stop mode is selected in the Cluster Setup menu. The solution is to manually stop the DAS 9200 by pressing F1: STOP.

This message can also appear when other modules in the cluster have not filled their memories. Wait for the other modules to fill their memories. If the message does not disappear in a short time, press F1: STOP.

Waiting for Stop-Store This message appears when the trigger condition is satisfied but the amount of post-fill memory specified in the trigger position field is not yet filled. Press F1: STOP to view the acquired data, then check for the following:

1. The trigger program in the Trigger menu is correct.
2. The storage qualification in the Trigger menu is correct.
3. The system or the module does not have an exception or fault. The 1553 bus or acquisition module might have experienced a hardware or software exception or fault after the trigger condition was satisfied.

Waiting for Trigger This message appears when the trigger condition does not occur. Check for the following:

1. The 1553 bus is powered on and running. Be sure the system is not halted.
2. The trigger conditions are not being satisfied. The Module Monitor menu shows which state events are not occurring. Press F1: STOP, access the Trigger menu, and redefine the conditions for that state. Also refer to the description on *Triggering* in the *Operating Basics* section.

92A96 Display Problems

There may be incorrect displays for which no error messages are displayed. Some of these problems and their recommended solutions follow.

Incorrect Data If the data acquired is obviously incorrect, check the following:

1. 1553 Support is selected in the 92A96 Configuration menu.
2. Custom is selected in the Clock menu.
3. The connections between the 92A96 Module and the probe adapter are correct.
   - The clock and 8-channel probe connections between the interface housings and probe adapter are correct (module name, clock, section names, and channel numbers match), are properly oriented (GND connects to ground), and are fully engaged.

- The connections between the interface housings and 92A96 probe cables have matched color labels, matched slot numbers, and are properly keyed.

4. No bent or missing pins on the probe adapter.

5. Correct symbol tables selected for each display group.

Other Suggestions

If the previous suggestions do not fix the problem with acquiring 1553A/B bus data, try the following:

Reload the module setup; select 1553 Support in the 92A96 Configuration menu to restore the 92A96 Module to a known state.

If the 92A96 Module is still not acquiring data after trying these solutions, there may be a problem with your 1553 system. Try performing hardware analysis with your 92A96 system to ensure that the 1553 probe adapter signals are valid at the time the 92A96 samples them.

Refer to *General Purpose Analysis* in the *Operating Basics* section for information on data sampling rates using either the Internal or External clocking selections in the Clock menu. Also refer to *How Data is Acquired* in the *Specifications* section to see when the support software and 92A96 Module sample the various 1553 probe adapter signals.

32GPX Acquisition Problems

These suggestions can assist you in the event that the PRISM cannot acquire data or acquires obviously incorrect data. Your first indication that data is not being acquired appears in the Acquisition Status screen shown in Figure A-1.

ACQUISITION STATUS

Module Name	Trigger Status	Memory Filled	Trigger Number
GPX1: TimeBase A	Pre-Trigger	0%	1

Figure A-1: Acquisition Status Screen

Notice that the MEMORY FILLED indicator stays at 0%. This indicates you are not acquiring data. Check for the following:

1. The 1553 system is powered on and running.

2. The podlets are fully seated on the probe adapter.

3. There are no bent or missing pins on the probe adapter.

4. The trigger condition selected on the logic analyzer occurs on the SUT.

Incorrect Data. If the data acquired is obviously incorrect, check the following:

1. The proper clock definition is selected in the Micro Clocking submenu of the Setup menu.
2. 1553 Support is selected in the Setup menu for TimeBase A.
3. A state trigger application is selected instead of a timing trigger application.
4. The podlets are fully seated on the probe adapter.
5. There are no bent or missing pins on the probe adapter.

If these suggestions do not fix the problem, try the following:

1. Reload the 1553_C application using the Load Application operation in the Save/Restore UTILITY menu and reacquire.
2. Acquire data asynchronously to localize the problem.
3. Trigger on all Xs (don't cares) to localize the problem.

Slow Clock. The Slow Clock message appears when the active clock channel (or channels) is not changing. Figure A-2 shows the Acquisition Status screen with the Slow Clock message.

ACQUISITION STATUS

Module Name	Trigger Status	Memory Filled	Trigger Number
GPX1: TimeBase A	Slow Clock	0%	1

Figure A-2: Acquisition Status Screen with Slow Clock

If this message appears, check for the following:

1. Your SUT is powered on and running. Be sure the system is not halted. Enter the Channel Grouping submenu and check to see if the activity indicators are moving.
2. 1553 is selected for TimeBase A.
3. The clock and 8-channel probe connections between the interface housing and probe adapter are correct, are properly oriented (GND connects to ground), and are fully engaged.
4. The connections between the interface housings and probe cables have matched color labels, matched slot numbers, and are properly keyed.

32GPX Display Problems

Occasionally you may receive an error message or experience a problem while using the bus support software. If an error message appears at the top of the screen, use Table A-1 to determine what to do next. The messages are arranged in alphabetical order.

Table A-1 Error Messages (32GPX)

Message	Meaning and Corrective Action
Disassembler cannot read setup file	An error condition in the file system is preventing the support software from reading the setup file. You must enter the setup. If the setup was saved, reload the setup.
Setup file does not contain a setup for this disassembler	You are trying to load a setup file designated for a different support software package.
Symbol file validation value bad	The support software is having trouble reading the symbol file. If you need the predefined symbols for the Control group, try to load the support software again. If you do not need the predefined symbols, continue with the load procedure.
Timing ACQMEM data; use State Data Format only	You have acquired data using Transitional or High Resolution clocking while support software is loaded. You can display this data in State format only. Disassembly displays (Hardware, Software, Control Flow, and Subroutine) will show the message Use State Data Format. Reacquire using 1553 clocking or unload support software and reacquire.
Unable to open symbol file	The support software is having trouble reading the symbol file. If you need the predefined symbols for the Control group, try to load the support software again. If you do not need the predefined symbols, continue with the load procedure.
Unable to read symbol file header	The support software is having trouble reading the symbol file. If you need the predefined symbols for the Control group, try to load the support software software again. If you do not need the predefined symbols, continue with the load procedure.
Warning: multiple loads not disabled	The support software was unable to prohibit the loading of a second support application. Do not try to load another support application to the same module.