Instruction Manual

Tektronix

TMS 807
AGP4X Bus Timing Support

071-0514-01

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.

Tektronix, Inc., 14200 SW Karl Braun Drive, Beaverton, OR 97077

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General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the *General Safety Summary* in other system manuals for warnings and cautions related to operating the system.

To Avoid Fire or Personal Injury

Use Proper Power Cord. Use only the power cord specified for this product and certified for the country of use.

Connect and Disconnect Properly. Do not connect or disconnect probes or test leads while they are connected to a voltage source.

Ground the Product. This product is indirectly grounded through the grounding conductor of the mainframe power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Do not apply a potential to any terminal, including the common terminal, that exceeds the maximum rating of that terminal.

Use Proper AC Adapter. Use only the AC adapter specified for this product.

Do Not Operate Without Covers. Do not operate this product with covers or panels removed.

Use Proper Fuse. Use only the fuse type and rating specified for this product.

Avoid Exposed Circuitry. Do not touch exposed connections and components when power is present.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

Provide Proper Ventilation. Refer to the manual's installation instructions for details on installing the product so it has proper ventilation.

Symbols and Terms

Terms in this Manual. These terms may appear in this manual:

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

CAUTION. *Caution statements identify conditions or practices that could result in damage to this product or other property.*

Terms on the Product. These terms may appear on the product:

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

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product. The following symbols may appear on the product:

CAUTION
Refer to Manual

Double
Insulated

Protective Ground
(Earth) Terminal

Service Safety Summary

Only qualified personnel should perform service procedures. Read this *Service Safety Summary* and the *General Safety Summary* before performing any service procedures.

Do Not Service Alone. Do not perform internal service or adjustments of this product unless another person capable of rendering first aid and resuscitation is present.

Disconnect Power. To avoid electric shock, switch off the instrument power, then disconnect the power cord from the mains power.

Use Care When Servicing With Power On. Dangerous voltages or currents may exist in this product. Disconnect power, remove battery (if applicable), and disconnect test leads before removing protective panels, soldering, or replacing components.

To avoid electric shock, do not touch exposed connections.

Preface

This instruction manual contains specific information about the TMS 807 AGP4X Bus Timing Support package and is part of a set of information on how to operate this product on compatible Tektronix logic analyzers.

If you are familiar with operating bus support packages on the logic analyzer for which the TMS 807 was purchased, you will probably only need this instruction manual to set up and run the support.

If you are not familiar with operating bus support packages, you will need to supplement this instruction manual with information on basic operations to set up and run the support.

Information on basic operations of bus support packages is included with each product. Each logic analyzer includes basic information that describes how to perform tasks common to support packages on that platform. This information can be in the form of online help, an installation manual, or a user manual.

This manual provides detailed information on the following topics:

- Connecting the logic analyzer to the system under test
- Setting up the logic analyzer to acquire data from the system under test
- Acquiring and viewing timing data

Manual Conventions

This manual uses the following conventions:

- The term “logic analyzer” refers to the Tektronix logic analyzer for which this product was purchased.

Logic Analyzer Documentation

A description of other documentation available for each type of Tektronix logic analyzer is located in the user manual of the corresponding module. The manual set provides the information necessary to install, operate, maintain, and service the logic analyzer and its associated products.

Contacting Tektronix

Product Support	For questions about using Tektronix measurement products, call toll free in North America: 1-800-TEK-WIDE (1-800-835-9433 ext. 2400) 6:00 a.m. – 5:00 p.m. Pacific time Or contact us by e-mail: tm_app_supp@tek.com For product support outside of North America, contact your local Tektronix distributor or sales office.
Service Support	Tektronix offers extended warranty and calibration programs as options on many products. Contact your local Tektronix distributor or sales office. For a listing of worldwide service centers, visit our web site.
For other information	In North America: 1-800-TEK-WIDE (1-800-835-9433) An operator will direct your call.
To write us	Tektronix, Inc. 14200 SW Karl Braun Drive Beaverton, OR 97077 USA
Website	Tektronix.com

Getting Started

Getting Started

This chapter contains information on the TMS 807 AGP4X Bus Timing Support and information on connecting your logic analyzer to your system under test (SUT).

Probe Adapter Description

The probe adapter is nonintrusive hardware that allows the logic analyzer to acquire data from an Accelerated Graphics Port (AGP) bus in its own operating environment with little effect, if any, on the target system. Information on basic operations contains a figure showing the logic analyzer connected to a typical probe adapter. Refer to that figure while reading the following description.

The probe adapter consists of two circuit boards-a card extender with an edge connector for an AGP4X card, and a probe interface board. The probe adapter plugs into the bus at the AGP4X connector. Signals from the bus flow from the probe adapter to the P6434 probes and through the probe cables to the logic analyzer.

The probe adapter accommodates the AGP4X bus and is powered with an external supply.

Support Package Description

The TMS 807 Bus Timing Support package displays the timing information from systems based on the Intel AGP4X bus.

To use this support efficiently, refer to information on basic operations and the following documents:

- *Accelerated Graphics Port Interface Specification, Intel, Version 2.0, 1998*

The AGP interface specification uses the 66 MHz PCI (*PCI Local Bus Specification*) specification as an operational baseline, and provides four significant performance extensions or enhancements to the PCI specification which are intended to optimize the AGP for high performance 3D graphics applications. These AGP extensions are not described in, or required by, the *PCI Local Bus Specification*. These extensions are:

- Deeply pipelined memory read and write operations, fully hiding memory access latency.
- Demultiplexing of address and data on the bus, allowing almost 100% bus efficiency.

- New AC timing in the 1.5 V electrical specification that provides for one, two, or four data transfers per 66 MHz clock cycle, allowing for real data throughput in excess of 500 MB/s.
- A new low voltage electrical specification that allows four data transfers per 66 MHz clock cycle, providing real data throughput of up to 1 GB/s.

These enhancements are realized through the use of sideband signals. The PCI specification has not been modified in any way, and the AGP interface specification has specifically avoided the use of any of the reserved fields, encodings, pins, etc., in the PCI specification. The intent is to utilize the PCI design base while providing a range of graphics-oriented performance enhancements with varying complexity/performance tradeoffs available to the component provider.

AGP neither replaces nor diminishes the necessity of PCI in the system. This high speed port (AGP) is physically, logically, and electrically independent of the PCI bus. It is an additional connection point in the system. It is intended for the exclusive use of visual display devices; all other I/O devices will remain on the PCI bus. The add-in slot defined for AGP uses a new connector body (for electrical signaling reasons) which is not compatible with the PCI connector; PCI and AGP boards are not mechanically interchangeable.

Logic Analyzer Software Compatibility

The label on the bus support floppy disk states which version of logic analyzer software the support is compatible with.

Logic Analyzer Configuration

For use with a TLA 700 Series, the TMS 807 support requires a minimum of one 102-channel logic analyzer module at 100 MHz.

Requirements and Restrictions

Review the electrical specifications in the *Specifications* chapter in this manual as they pertain to your system under test, as well as the following descriptions of other AGP4X support requirements and restrictions.

Hardware Reset. If a hardware reset occurs in your AGP4X system during an acquisition, the application software may acquire an invalid sample.

System Clock Rate. The AGP4XT support can acquire data from the bus operating at speeds of up to 66 MHz.

Standard Accessories

The TMS 807 Support is shipped with the following standard accessories:

- TMS 807 Support SW Disk
- TMS 807 Support Instruction Manual

Options

The following options are available when ordering the TMS 807 Support:

- Option 01–Add Probe Adapter
- Option 21–Add P6434 Mass-Termination Probes (3)
- Option A1 Power Cord
- Option A2 Power Cord
- Option A3 Power Cord
- Option A5 Power Cord

Connecting the Logic Analyzer to a System Under Test

To connect the probe adapter and probes to AGP4X signals in the system under test, refer to Figures 1–1 through 1–3 and follow these steps:

1. Turn off power to your system under test. It is not necessary to turn off power to the logic analyzer.

CAUTION. *Static discharge can damage the bus, the probe adapter, the probes, and the logic analyzer module. To prevent static damage, handle these components only in a static-free environment.*

Always wear a grounding wrist strap, heel strap, or similar device while handling the bus.

2. To discharge your stored static electricity, touch the ground connector located on the back of the logic analyzer.
3. Place the system under test on a horizontal static-free surface.
4. Plug the probe interface board into the graphics card extender as shown in Figure 1–1 on page 1–4.

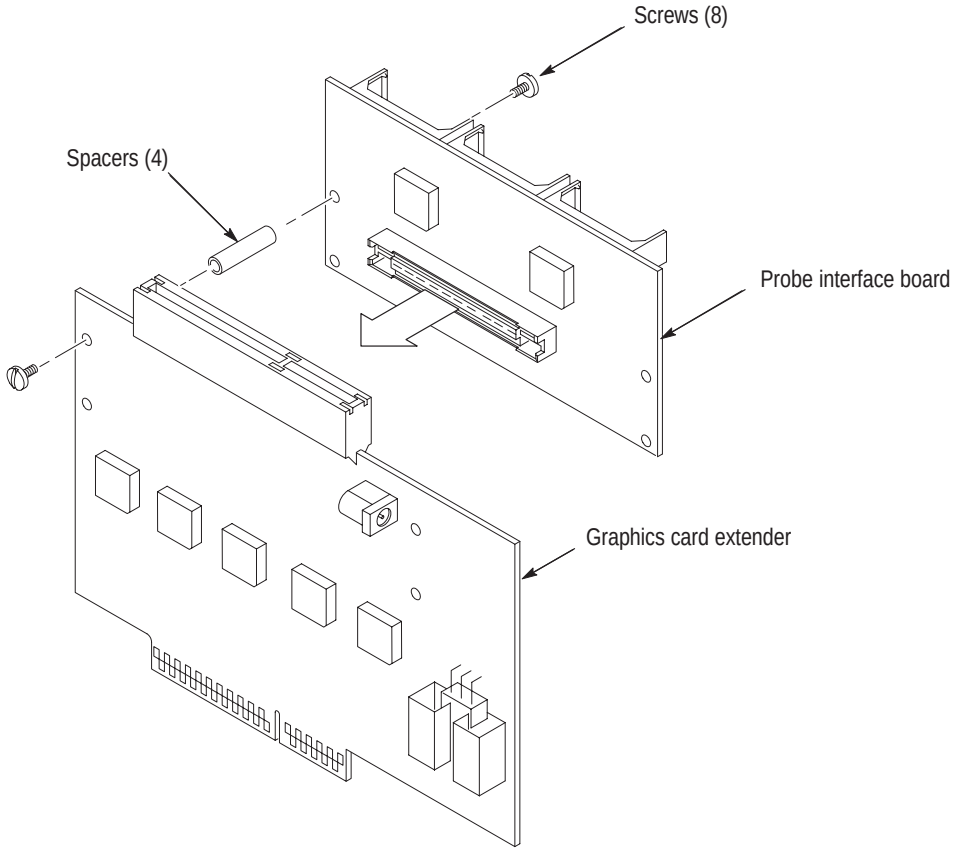


Figure 1–1: Connecting the probe adapter boards together

5. Fasten the two probe adapter boards together with the plastic hardware.
6. Plug the graphics card into the probe adapter as shown in Figure 1–2 on page 1–5.

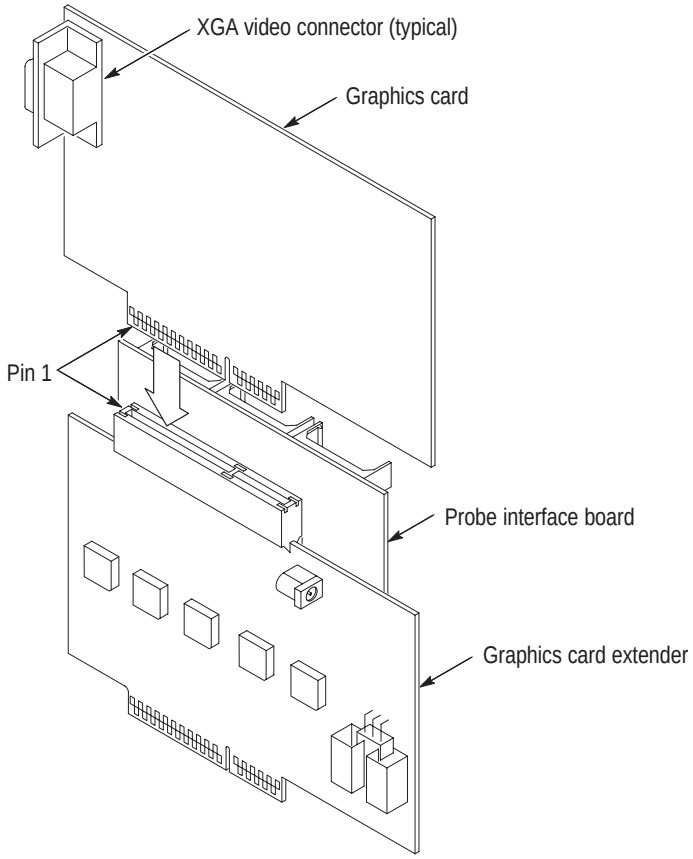


Figure 1–2: Connecting the graphics card to the probe adapter

NOTE. *The graphics card must be plugged into the probe adapter for proper operation.*

7. Plug the probe adapter into the system under test as shown in Figure 1–3.

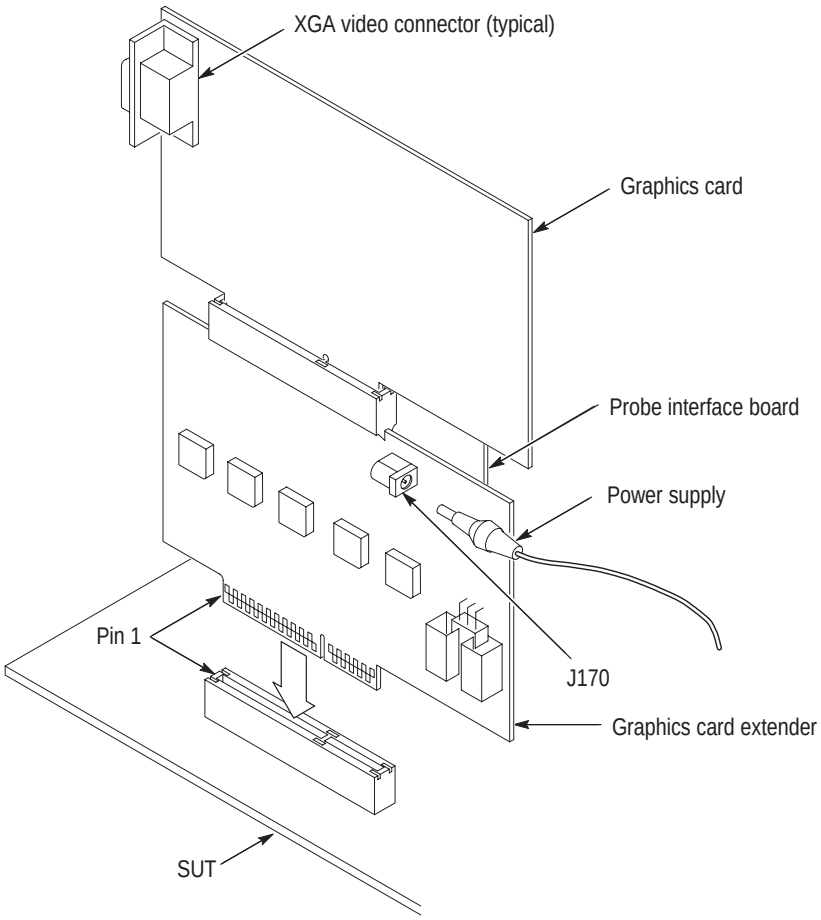


Figure 1–3: Connecting the probe adapter and graphics card to the system

8. Connect the power supply to J170 on the probe adapter. See Figure 1–3. Plug the power supply in to the appropriate AC power source.

9. Connect the P6434 probes to the Mictor connectors on the probe interface board. See Figure 1–4. These are connected to the signal pins as shown in Table 1–1 through Table 1–5.

10. Connect the module ends of the P6434 probes to the corresponding connectors (match label colors) on the logic analyzer. The probe module ends are keyed.

11. Apply forced air cooling across the AGP graphics card consistent with the recommendations of the manufacturer.

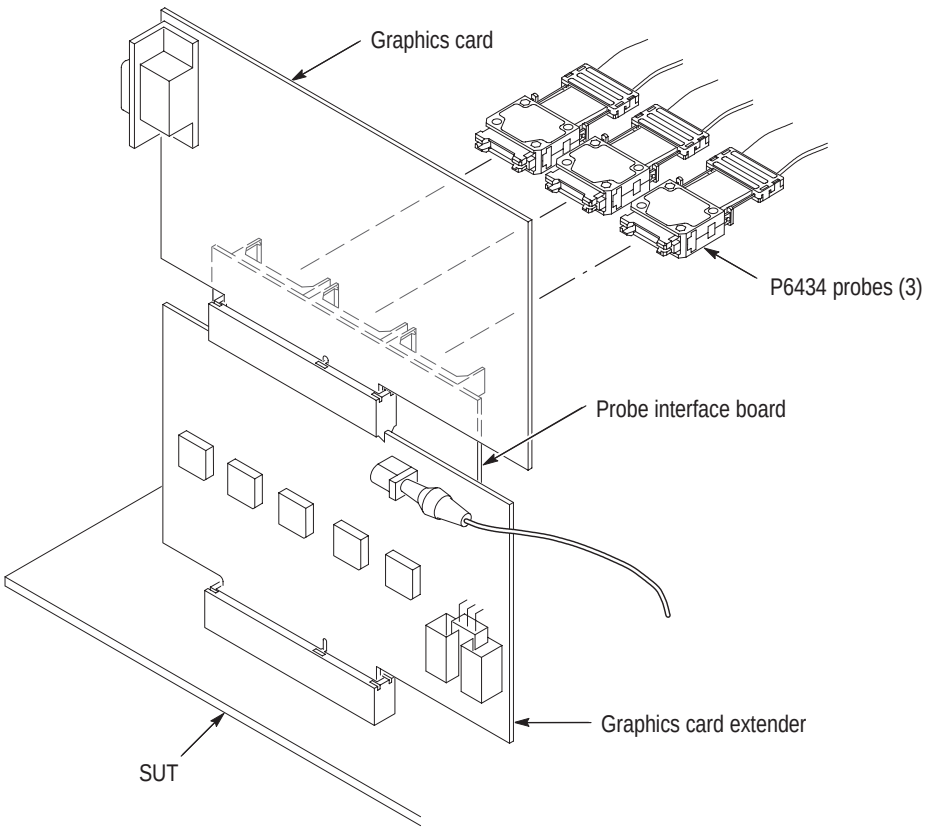


Figure 1–4: Connecting the probes to the probe adapter

Channel Assignments

Channel assignments listed in Table 1–1 through Table 1–5 use the following conventions:

- All signals are required by the support unless indicated otherwise.
- Channels are listed starting with the most significant bit (MSB) descending to the least significant bit (LSB).
- A pound sign (#) following a signal name indicates an active low signal.
- The naming conventions of the signals follow the AGP4X specifications.
- Channel group assignments are for all modules unless otherwise noted.
- The module in the higher-numbered slot is referred to as the HI module and the module in the lower-numbered slot is referred to as the LO module.

  The portable logic analyzer has the lower-numbered slots on the top and the benchtop logic analyzer has the lower-numbered slots on the left.

Table 1–1 lists the probe section and channel assignments for the Address group and the bus signal for each channel connect. By default, this channel group is displayed in hexadecimal.

Table 1–1: Address channel group assignments

Bit order	Section:channel	AGP4X signal name
31	A3:7	AD31
30	A3:6	AD30
29	A3:5	AD29
28	A3:4	AD28
27	A3:3	AD27
26	A3:2	AD26
25	A3:1	AD25
24	A3:0	AD24
23	A2:7	AD23
22	A2:6	AD22
21	A2:5	AD21
20	A2:4	AD20
19	A2:3	AD19
18	A2:2	AD18
17	A2:1	AD17
16	A2:0	AD16
15	A1:7	AD15
14	A1:6	AD14
13	A1:5	AD13
12	A1:4	AD12
11	A1:3	AD11
10	A1:2	AD10
9	A1:1	AD9
8	A1:0	AD8
7	A0:7	AD7
6	A0:6	AD6
5	A0:5	AD5
4	A0:4	AD4
3	A0:3	AD3
2	A0:2	AD2
1	A0:1	AD1
0	A0:0	AD0

Table 1–2 lists the probe section and channel assignments for the Command group and the bus signal for each channel connect. The symbol table file name is AGP4XT_Command. By default, this channel group is displayed as symbols.

Table 1–2: Command channel group assignments

Bit order	Section:channel	AGP4X signal name
6	C1:7	IRDY#
5	C2:3	FRAME#
4	CLK:0	PIPE#
3	C1:5	C/BE3#
2	C1:4	C/BE2#
1	C1:3	C/BE1#
0	C1:2	C/BE0#

Table 1–3 lists the probe section and channel assignments for the Status group and the bus signal for each channel connect. The symbol table file name is AGP4XT_Status. By default, this channel group is displayed as symbols.

Table 1–3: Status channel group assignments

Bit order	Section:channel	AGP4X signal name
3	C2:1	GNT#
2	D0:2	ST2
1	D0:1	ST1
0	D0:0	ST0

Table 1–4 lists the probe section and channel assignments of the Control group and the bus signal for each channel connect. The default radix of the Control group is SYMBOLIC. The symbol table file name is AGP4XT_Control. By default, this channel group is displayed as symbols.

Table 1–4: Control channel group assignments

Bit order	Section:channel	AGP4X signal name
13	CLK:1	RST#
12	D0:5	PME#
11	D0:3	RBF#
10	D1:3	SERR#

Table 1–4: Control channel group assignments (cont.)

Bit order	Section:channel	AGP4X signal name
9	D1:7	PERR#
8	D1:6	PAR
7	D1:5	REQ#
6	C2:1	GNT#
5	CLK:0	PIPE#
4	C2:3	FRAME#
3	C1:7	IRDY#
2	C1:6	TRDY#
1	D1:4	DEVSEL#
0	C2:0	STOP#

Table 1–5 lists the section and channel assignments for the Misc group and the bus signal for each channel connect. By default, this channel group is not visible.

Table 1–5: Misc channel group assignments

Bit order	Section:channel	AGP4X signal name
18	D1:2	OVRCNT#
17	D0:6	INTB#
16	D0:7	INTA#
15	D0:4	WBF#
14	C2:7	AD_STB0
13	C2:6	AD_STB0#
12	C2:5	AD_STB1
11	C2:4	AD_STB1#
10	C1:1	SB_STB
9	C2:3	SB_STB#
8	C3:7	SBA7
7	C3:6	SBA6
6	C3:5	SBA5
5	C3:4	SBA4
4	C3:3	SBA3
3	C3:2	SBA2
2	C3:1	SBA1
1	C3:0	SBA0
0	CLK:3	CLK

Table 1–6 lists the probe section and channel assignments for the clock probes (not part of any group), and the AGP4X signal to which each channel connects.

Table 1–6: Clock and qualifier channel assignments

LA section and probe	AGP4X signal name
CLK:0	PIPE#
CLK:1	RST#
CLK:2	
CLK:3	CLK
C2:0	STOP#
C2:1	GNT#
C2:2	
C2:3	FRAME#

Acquisition Setup. The AGP4X timing support will affect the logic analyzer setup menus and submenus by modifying existing fields and adding micro-specific fields.

The AGP4X timing support will add the selection AGP4XT to the Load Support Package dialog box, located under the File pulldown menu. Once the AGP4XT support has been loaded, the Internal clocking mode selection in the module Setup menu is also enabled.

Table 1–7 lists the signals that are available on test pads on the probe adapter, but not connected to the Mictor connectors.

Table 1–7: Signals on the probe adapter that are not acquired

AGP4XT pin number	AGP4X signal name
B4	USB+
A4	USB–
A66	Vrefgc
B66	Vrefcg
A34	Vddq1.5
A28	Vcc3.3
B24	3.3Vaux
B2	5.0V
A1	12.0V

Loading and Equivalent Circuits

The load presented to the SUT by the AGP probe adapter is low. The following approximation of the probe adapter loading is sufficient for most circuit-simulation calculations.

Table 1–8 shows the values you can use to calculate characteristics of the lossy delay lines shown in the next two figures.

Table 1–8: Lossy delay line values

Characteristic	Value
C (capacitance)	3 pF per inch
L (inductance)	10.8 nH per inch
R (resistance)	.067 Ω per inch
Z_0 (impedance)	60 Ω

Figure 1–5 shows the circuit loads presented by the probe adapter.

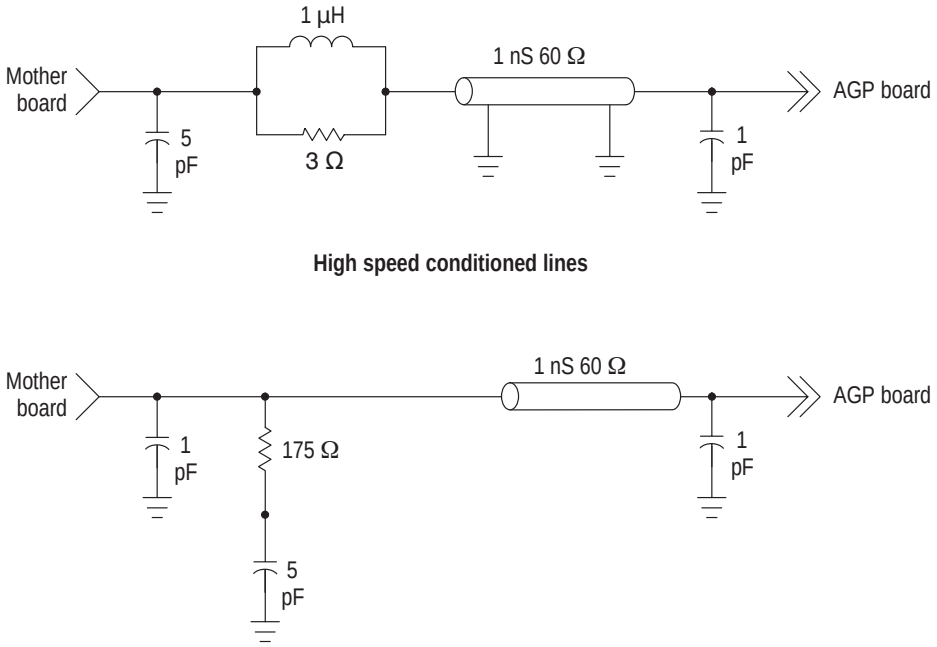


Figure 1–5: Equivalent circuit loads for the probe adapter

Channel Charts

Tables 1–9 through 1–14 identify the signal names assigned to the acquisition channel numbers on the logic analyzer.

Table 1–9: Clock channels

TLA clock channel	CLK or Qual	Active CLK edge	Login strobe	AGP4X signal name
CLK:3	CLK & Qual	Both	M	CLK
CLK:2			M	
CLK:1	Qual		M	RST#
CLK:0			M	PIPE#

Table 1–10: Address channels

TLA acquisition channel	Mictor pin number	Login group	Login strobe	AGP4X signal name
A3:7	4	LOGA7	M	AD31
A3:6	5	LOGA7	M	AD30
A3:5	6	LOGA7	M	AD29
A3:4	7	LOGA7	M	AD28
A3:3	8	LOGA6	M	AD27
A3:2	9	LOGA6	M	AD26
A3:1	10	LOGA6	M	AD25
A3:0	11	LOGA6	M	AD24
A2:7	12	LOGA5	M	AD23
A2:6	13	LOGA5	M	AD22
A2:5	14	LOGA5	M	AD21
A2:4	15	LOGA5	M	AD20
A2:3	16	LOGA4	M	AD19
A2:2	17	LOGA4	M	AD18
A2:1	18	LOGA4	M	AD17
A2:0	19	LOGA4	M	AD16
A1:7	35	LOGA3	M	AD15
A1:6	34	LOGA3	M	AD14
A1:5	33	LOGA3	M	AD13
A1:4	32	LOGA3	M	AD12
A1:3	31	LOGA2	M	AD11
A1:2	30	LOGA2	M	AD10
A1:1	29	LOGA2	M	AD9
A1:0	28	LOGA2	M	AD8
A0:7	27	LOGA1	M	AD7
A0:6	26	LOGA1	M	AD6
A0:5	25	LOGA1	M	AD5
A0:4	24	LOGA1	M	AD4
A0:3	23	LOGA0	M	AD3
A0:2	22	LOGA0	M	AD2
A0:1	21	LOGA0	M	AD1
A0:0	20	LOGA0	M	AD0

Table 1–11: Data channels

TLA acquisition channel	Mictor pin number	Login group	Login strobe	AGP4X signal name
D3:7	4	LOGD7	M	
D3:6	5	LOGD7	M	
D3:5	6	LOGD7	M	
D3:4	7	LOGD7	M	
D3:3	8	LOGD6	M	
D3:2	9	LOGD6	M	
D3:1	10	LOGD6	M	
D3:0	11	LOGD6	M	
D2:7	12	LOGD5	M	
D2:6	13	LOGD5	M	
D2:5	14	LOGD5	M	
D2:4	15	LOGD5	M	
D2:3	16	LOGD4	M	
D2:2	17	LOGD4	M	
D2:1	18	LOGD4	M	
D2:0	19	LOGD4	M	
D1:7	35	LOGD3	M	PERR#
D1:6	34	LOGD3	M	PAR
D1:5	33	LOGD3	M	REQ#
D1:4	32	LOGD3	M	DEVSEL#
D1:3	31	LOGD2	M	SERR#
D1:2	30	LOGD2	M	OVRCNT#
D1:1	29	LOGD2	M	
D1:0	28	LOGD2	M	
D0:7	27	LOGD1	M	INTA#
D0:6	26	LOGD1	M	INTB#
D0:5	25	LOGD1	M	PME#
D0:4	24	LOGD1	M	WBF#
D0:3	23	LOGD0	M	RBF#
D0:2	22	LOGD0	M	ST2
D0:1	21	LOGD0	M	ST1
D0:0	20	LOGD0	M	ST0

Table 1–12: Control channels

TLA acquisition channel	Mictor pin number	Login group	Login strobe	AGP4X signal name
C3:7	4	LOGC7	M	SBA7
C3:6	5	LOGC7	M	SBA6
C3:5	6	LOGC7	M	SBA5
C3:4	7	LOGC7	M	SBA4
C3:3	8	LOGC6	M	SBA3
C3:2	9	LOGC6	M	SBA2
C3:1	10	LOGC6	M	SBA1
C3:0	11	LOGC6	M	SBA0
C2:7	12	LOGC5	M	AD_STB0
C2:6	13	LOGC5	M	AD_STB0#
C2:5	14	LOGC5	M	AD_STB1
C2:4	15	LOGC5	M	AD_STB1#
C2:3	16	LOGC4	M	FRAME#
C2:2	17	LOGC4	M	
C2:1	18	LOGC4	M	GNT#
C2:0	19	LOGC4	M	STOP#
C1:7	35	LOGC3	M	IRDY#
C1:6	34	LOGC3	M	TRDY#
C1:5	33	LOGC3	M	C/BE3#
C1:4	32	LOGC3	M	C/BE2#
C1:3	31	LOGC2	M	C/BE1#
C1:2	30	LOGC2	M	C/BE0#
C1:1	29	LOGC2	M	SB_STB
C1:0	28	LOGC2	M	SB_STB#
C0:7	27	LOGC1	M	
C0:6	26	LOGC1	M	
C0:5	25	LOGC1	M	
C0:4	24	LOGC1	M	
C0:3	23	LOGC0	M	
C0:2	22	LOGC0	M	
C0:1	21	LOGC0	M	
C0:0	20	LOGC0	M	

Table 1–13: Control channels

TLA acquisition channel	Login group	Login strobe	AGP4X signal name
C3:7	LOGC7	M	SBA7
C3:3	LOGC7	M	SBA3
C2:7	LOGC7	M	AD_STB0
C2:3	LOGC7	M	FRAME#
C3:6	LOGC6	M	SBA6
C3:2	LOGC6	M	SBA2
C2:6	LOGC6	M	AD_STB0#
C2:2	LOGC6	M	
C3:5	LOGC5	M	SBA5
C3:1	LOGC5	M	SBA1
C2:5	LOGC5	M	AD_STB1
C2:1	LOGC5	M	GNT#
C3:4	LOGC4	M	SBA4
C3:0	LOGC4	M	SBA0
C2:4	LOGC4	M	AD_STB1#
C2:0	LOGC4	M	STOP#
C1:7	LOGC3	M	IRDY#
C1:3	LOGC3	M	C/BE1#
C0:7	LOGC3	M	
C0:3	LOGC3	M	
C1:6	LOGC2	M	TRDY#
C1:2	LOGC2	M	C/BE0#
C0:6	LOGC2	M	
C0:2	LOGC2	M	
C1:5	LOGC1	M	C/BE3#
C1:1	LOGC1	M	SB_STB
C0:5	LOGC1	M	
C0:1	LOGC1	M	
C1:4	LOGC0	M	C/BE2#
C1:0	LOGC0	M	SB_STB#
C0:4	LOGC0	M	
C0:0	LOGC0	M	

Table 1–14: Control channels (sorted by login group)

TLA acquisition channel	Login group	Login strobe	AGP4X signal name
C3:7	LOGC7	M	PAR
C3:3	LOGC7	M	PME#
C2:7	LOGC7	M	C/BE0#
C2:3	LOGC7	M	GNT#
C3:6	LOGC6	M	PERR#
C3:2	LOGC6	M	ST0
C2:6	LOGC6	M	C/BE1#
C2:2	LOGC6	M	PIPE#
C3:5	LOGC5	M	SERR#
C3:1	LOGC5	M	ST1
C2:5	LOGC5	M	C/BE2#
C2:1	LOGC5	M	FRAME#
C3:4	LOGC4	M	RBF#
C3:0	LOGC4	M	ST2
C2:4	LOGC4	M	C/BE3#
C2:0	LOGC4	M	IRDY#

Operating Basics

Setting Up the Support

This section provides information on how to set up the support. The information covers the following topics:

- Clocking options
- Symbol table files

The information in this section is specific to the operations and functions of the TMS 807 AGP4XT timing support on any Tektronix logic analyzer for which it can be purchased.

Before you acquire and display data, you need to install the support and then specify the setups for clocking and triggering as described in the information on basic operations. The support provides default values for each of these setups, but you can change them as needed.

Installing the Support Software

NOTE. *Before you install any software, it is recommended you verify the microprocessor support software is compatible with the logic analyzer software.*

To install the TMS 807 support software on your Tektronix logic analyzer, follow these steps:

1. Insert the floppy disk in the disk drive.
2. Click the Windows Start button, point to Settings, and click Control Panel.
3. In the Control Panel window, double-click Add/Remove Programs.
4. Follow the instructions on the screen for installing the software from the floppy disk.

To remove or uninstall software, follow the above instructions and select Uninstall. You need to close all windows before you uninstall any software.

Channel Group Definitions

The software automatically defines channel groups for the support. The channel groups for the AGP4XT timing support are Address, Command, Status, Control, and Misc. If you want to know which signal is in which group, refer to the channel assignment tables beginning on page 1–9.

Clocking

The following section provides information on custom clocking and clocking options.

Custom Clocking

A special clocking program is loaded to the module every time you load the AGP4X timing support. This special clocking is called Custom.

When Custom is selected, the Custom Clocking Options menu has the subtitle AGP4XT added, and clocking options are displayed.

The custom clocking provides for a clock-by-clock acquisition which logs in all the channels on the rising, falling or both edges of the AGP CLK.

Clocking Options

The TMS 807 timing support offers a bus-specific clocking mode for the AGP4X bus. This clocking mode is made available whenever the AGP4XT support is loaded.

There is one clocking option provided with the TMS 807 AGP4X timing support, named Acquisition CLK Edge.

Three selections are provided for this option:

- Rising only
- Falling only
- Both (200 MHz only)

The Rising only selection implies that the AGP4X signals will be logged in on the rising edges of the AGP4X CLK.

The Falling only selection implies that the AGP4X signals will be logged in on the falling edges of the AGP4X CLK.

The Both selection implies that the AGP4X signals will be logged in on both the rising and falling edges of the AGP4X CLK.

Symbols

The TMS 807 support provides three symbol-table files. The AGP4XT_Command file replaces specific Command-channel group values with symbolic values when Symbolic is the radix for the channel group.

Table 2–1 lists the name, bit pattern, and description for the symbols in the file AGP4XT_Command in the Control channel group symbol table.

Table 2–1: Command group symbol table definitions

Symbol	Command group value (FRAME# PIPE# C/BE3# C/BE2# C/BE1# C/BE0#)	Description
–	1 1 X X X X	Not an AGP or PCI command
Bus Fault	0 0 X X X X	Bus Fault
AGP_Rd_LP	1 0 0 0 0 0	AGP Low Priority Read
AGP_Rd_HP	1 0 0 0 0 1	AGP High Priority Read
AGP_Wr_LP	1 0 0 1 0 0	AGP Low Priority Write
AGP_Wr_HP	1 0 0 1 0 1	AGP High Priority Write
AGP_Lg_Rd_LP	1 0 1 0 0 0	AGP Low Priority Long Read
AGP_Lg_Rd_HP	1 0 1 0 0 1	AGP High Priority Long Read
AGP_Flush	1 0 1 0 1 0	AGP Flush command
AGP_Fence	1 0 1 1 0 0	AGP Fence command
AGP_Ext_Addr	1 0 1 1 0 1	AGP Extended Address command
AGP_Lg_Rd	1 0 1 0 0 X	AGP Long Read
AGP_Rd	1 0 0 0 0 X	AGP Read
AGP_Wr	1 0 0 1 0 X	AGP Write
AGP_Cmd	1 0 X X X X	Any AGP command
PCI_Cmd	0 1 X X X X	Any PCI command

Information on basic operations describes how to use symbolic values for triggering and for displaying other channel groups symbolically, such as for the Address channel group.

Table 2–2 shows the name, bit pattern, and meaning for the symbols in the file AGP4XT_Status, the Status channel group symbol table.

Table 2–2: Status group symbol table definitions

Symbol	Status group value (GNT# ST2 ST1 ST0)	Description
–	1 X X X	Grant not asserted
~	0 1 1 1	Transaction Request
Rd_LP	0 0 0 0	Low Priority Read
Rd_HP	0 0 0 1	High Priority Read
Wr_LP	0 0 1 0	Low Priority Write
Wr_HP	0 0 1 1	High Priority Write
Rd	0 0 0 X	Any Read
Wr	0 0 1 X	Any Write
Rd/Wr	0 0 X X	Any Read or Write
LP	0 0 X 0	Any Low Priority
HP	0 0 X 1	Any High Priority

Table 2–3 shows the name, bit pattern, and meaning for the symbols in the file AGP4XT_Control, the Control channel group symbol table.

Table 2–3: Control group symbol table definitions

Symbol	Control group value RST# RBF# REQ# IRDY# PME# SERR# GNT# TRDY# PERR# PIPE# DEVSEL# PAR FRAME# STOP#	Meaning
Reset	0 X X X X X X X X X X X X	Reset
Sys_Err	1 X X 0 X X X X X X X X X	System Error
Par_Err	1 X X X 0 X X X X X X X X	Parity Error
AGP_Addr	1 X X X X X X 0 1 1 1 1 X	AGP Address
IRDY TRDY	1 X X X X X X X X 0 0 X X	IRDY/TRDY asserted
IRDY	1 X X X X X X X X 0 X X X	IRDY asserted
TRDY	1 X X X X X X X X X 0 X X	TRDY asserted
Rd_Buf_Fl	1 X 0 X X X X X X X X X X	Read Buffer Full
Grant	1 X X X X X X 0 X X X X X	Grant asserted
Request	1 X X X X X 0 X X X X X X	Request asserted
Stop	1 X X X X X X X X X X X 0	Stop asserted
Dev_Sel	1 X X X X X X X X X X 0 X	Device Select asserted
Pwr_Mgmt_En	1 0 X X X X X X X X X X X	Power Management Enable
Pipe	1 X X X X X X X 0 1 X X X	PIPE asserted
Frame	1 X X X X X X X 1 0 X X X	Frame asserted
–	1 1 1 1 1 X 1 1 1 1 1 1 1	Bus inactive

How Data is Acquired

This part of the chapter explains how the module acquires AGP4X signals using the TMS 807 software and probe adapter. This part also provides additional information on bus signals accessible on or not accessible on the probe adapter, and on extra probe channels available for you to use for additional connections, if any.

Custom Clocking

A special clocking program is loaded to the module every time you load the AGP4XT support. This special clocking is called Custom.

With Custom clocking, the module is capable of logging in the AGP4X signals from multiple groups of channels at the rising, falling, or both edges of the AGP4X CLK signal. The module then sends all the logged-in signals to the trigger machine and to the memory of the module for storage.

Signals Not On the Probe Adapter

The TMS 807 probe adapter provides access for all of the AGP4X signals.

Specifications

Specifications

This chapter contains information regarding the specifications of the support.

Specifications

These specifications are for a probe adapter connected between a compatible Tektronix logic analyzer and a SUT. Table 3–1 shows the electrical requirements the SUT must produce for the support to acquire correct data.

In Table 3–1, one podlet load is 20 kΩ in parallel with 2 pF.

Table 3–1: Electrical specifications

Characteristics	Requirements
Probe adapter: DC power requirements	
Voltage, VCC	4.75 – 5.25 VDC
Current, VCC	I typical 1.4 A
AC adapter	
Input Voltage rating	90 – 265 V CAT II
Input Frequency Rating	47 – 63 Hz
Output Voltage Rating	5 V
Output Current Rating	5 A
Output Power Rating	25 W
SUT clock rate	Maximum 66 MHz
Minimum setup time required[1]	2.5 ns
Minimum hold time required[1]	0 ns

[1] **Sync mode only**

Table 3–2 shows the environmental specifications.

Table 3–2: Environmental specifications[1]

Characteristic	Description
Temperature	
Maximum operating	+50° C (+122° F)[2]
Minimum operating	0° C (+32° F)

Table 3–2: Environmental specifications[1] (cont.)

Characteristic	Description
Non-operating	–55° C to +75° C (–67° to +167° F)
Humidity	10 to 95% relative humidity
Altitude	
Operating	4.5 km (15,000 ft) maximum
Non-operating	15 km (50,000 ft) maximum
Electrostatic immunity	The probe adapter is static sensitive

1 **Designed to meet Tektronix standard 062-2847-00 class 5.**

2 **Not to exceed AGP4X bus thermal considerations. Forced air cooling might be required.**

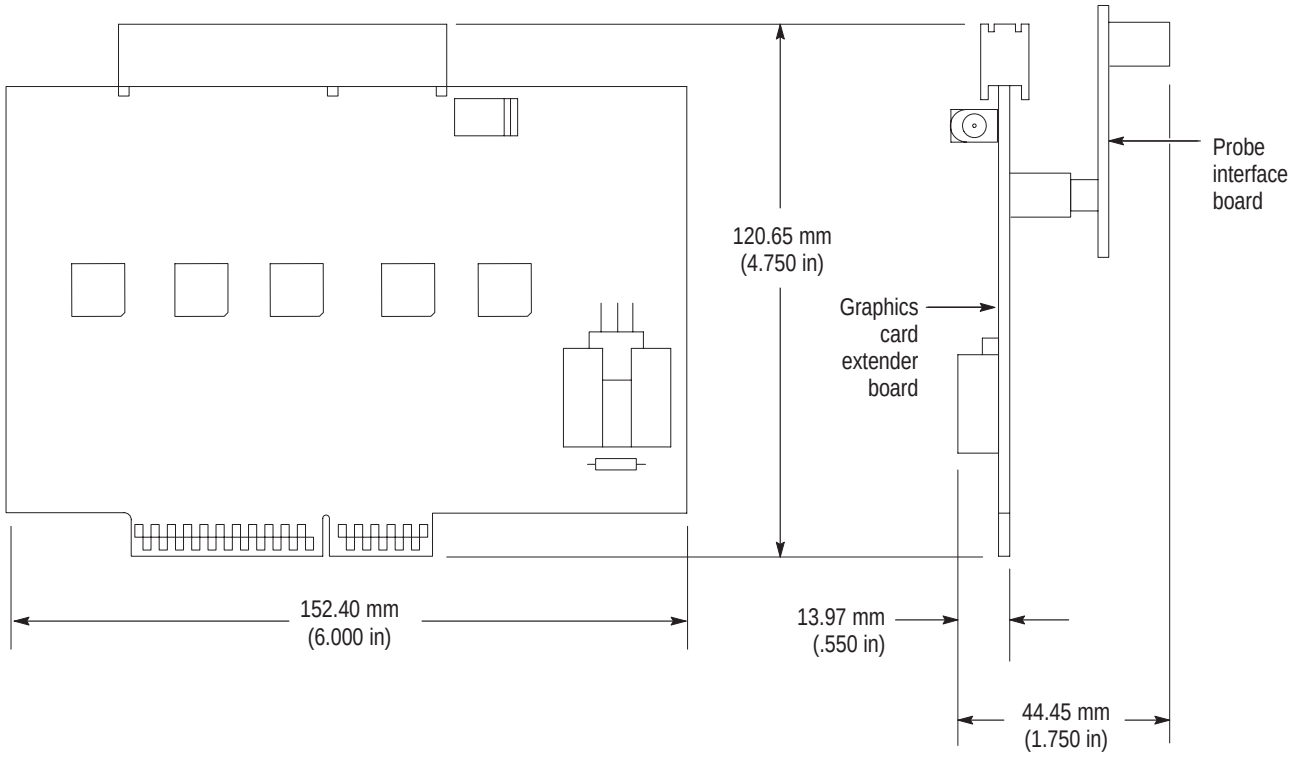
Table 3–3 shows the compliances that apply to the probe adapter.

Table 3–3: Certifications and compliances

EC Compliance	There are no current European Directives that apply to this product.

Figure 3–1 shows the dimensions of the probe adapter.

Graphics card extender



Probe interface board

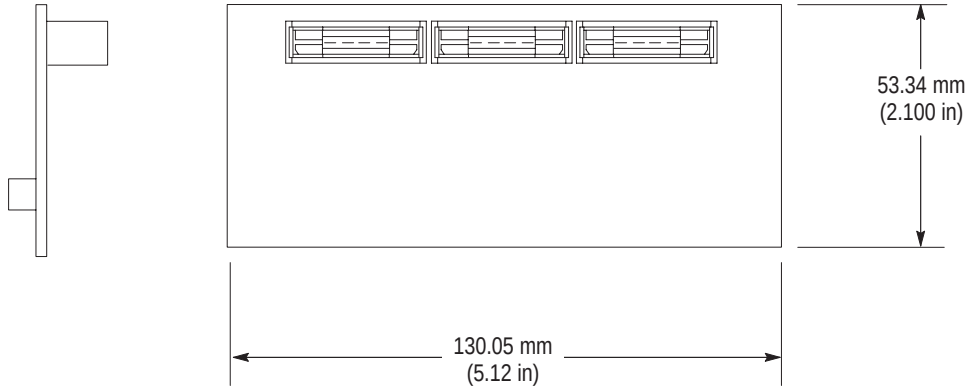


Figure 3–1: Probe adapter dimensions

Diagrams

Replaceable Parts

Replaceable Parts

This chapter contains a list of the replaceable components for the TMS 807 AGP4XT bus support.

Parts Ordering Information

Replacement parts are available through your local Tektronix field office or representative.

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

- Part number
- Instrument type or model number
- Instrument serial number
- Instrument modification number, if applicable

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

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

Using the Replaceable Parts List

The tabular information in the Replaceable Parts List is arranged for quick retrieval. Understanding the structure and features of the list will help you find all of the information you need for ordering replacement parts. The following table describes the content of each column in the parts list.

Parts list column descriptions

Column	Column name	Description
1	Figure & index number	Items in this section are referenced by figure and index numbers to the exploded view illustrations that follow.
2	Tektronix part number	Use this part number when ordering replacement parts from Tektronix.
3 and 4	Serial number	Column three indicates the serial number at which the part was first effective. Column four indicates the serial number at which the part was discontinued. No entries indicates the part is good for all serial numbers.
5	Qty	This indicates the quantity of parts used.
6	Name & description	An item name is separated from the description by a colon (:). Because of space limitations, an item name may sometimes appear as incomplete. Use the U.S. Federal Catalog handbook H6-1 for further item name identification.
7	Mfr. code	This indicates the code of the actual manufacturer of the part.
8	Mfr. part number	This indicates the actual manufacturer's or vendor's part number.

Abbreviations Abbreviations conform to American National Standard ANSI Y1.1-1972.

Chassis Parts Chassis-mounted parts and cable assemblies are located at the end of the Replaceable Parts List.

Mfr. Code to Manufacturer Cross Index The table titled Manufacturers Cross Index shows codes, names, and addresses of manufacturers or vendors of components listed in the parts list.

Manufacturers cross index

Mfr. code	Manufacturer	Address	City, state, zip code
00779	AMP INC.	CUSTOMER SERVICE DEPT PO BOX 3608	HARRISBURG, PA 17105-3608
14310	AULT INC	7300 BOONE AVE NORTH BROOKLINE PARK	MINNEAPOLIS, MN 55428
60381	PRECISION INTERCONNECT CORP.	16640 SW 72ND AVE	PORTLAND, OR 97224
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
82389	SWITCHCRAFT	DIV OF RAYTHEON 5555 N. ELSTON AVENUE	CHICAGO, IL 60630-1314
S3109	FELLER U.S. CORPORATION	72 VERONICA AVE UNIT #4	SOMERSET, NJ 08873
TK0303	FAB-TEK INC	324 CHRISTIAN ST	OXFORD, CT 06478
TK1373	PATELEC-CEM	10156 TORINO VAICENTALLO 62/456	ITALY,
TK2541	AMERICOR ELECTRONICS LTD	UNIT-H 2682 W COYLE AVE	ELK GROVE VILLAGE, IL 60007
TK2548	XEROX CORPORATION	14181 SW MILLIKAN WAY	BEAVERTON, OR 97005

Replaceable parts list

Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
5-0	010-0635-00			1	CIRCUIT BD ASSY:AGP4XT,TIMING, WIRED,TMS807 OPT 01	80009	010-0635-00
-1	671-4868-00			1	CIRCUIT BD ASSY:AGP4X,EXTENDER,TMS807 OPT 01	80009	671-4868-00
-2	131-6269-00			1	CONN, EDGECARD:STRADDLEMNT, FEMALE, STR, 124 POS,0.039 CTR (1.0MM CTR),0.386 TAIL X 0.37 H,30 G	00779	145384-1
-3	131-6468-00			1	CONN,RCPT:SMD,MICTOR,FEMALE,STR,114 POS,0.025 CTR,PDNI,0.236 H,MATCHED IMPEDANCE,50 OHMS	TK0AT	767054-3
-4	159-0059-00			1	FUSE,WIRE LEAD:5A,125V	61857	SPI-5A
-5	131-6610-00			1	JACK,POWER DC:PCB,MALE,RTANG,2MM D PIN,BRASS,SILVER PLATE,5A	82389	RAPC722TB
-6	671-4790-00			1	CIRCUIT BD ASSY:AGP4X T, ADAPTER,TMS807 OPT 01	80009	671-4790-00
-7	105-1089-00			3	LATCH ASSY:LATCH HOUSING ASSY,VERTICAL MOUNT,0.48 H X 1.24 L,W/PCB SINGLE CLIP,P6434	60381	105-1089-00
-8	131-6134-01			3	CONN,PLUG:SMD,MICTOR,PCB,FEMALE,STR,38 POS,0.025 CTR,0.245 H,GOLD,TLA7QS	00779	767054-1
-9	131-6753-00			1	CONN,HDR:SMD, MALE, STR, 114 POS, 0.025 CTR, 30 GOLD,MATCHED IMPEDANCE, MICTOR	00779	767042-3
-10	211–0028–00			8	SCREW,MACHINE:4–40 X 0.188,BDGH,NYL SLOT	85480	ORDER BY DESCRIPTION
-11	385–0107–00			4	SPACER,POST:0.75 L W/4–40 THD THRU,NYL 0.25 OD	5Y400	385–0107–00
					STANDARD ACCESSORIES		
	071-0514-01			1	MANUAL,TECH:INSTRUCTION,AGP4XT,TMS807	TK2548	071-0514-01
	----------			1	MANUAL, TECH: TLA 700 SERIES MICRO SUPPORT USER	80009	ORDER BY DESCRIPTION
	161-0104-00			1	CA ASSY,PWR:3,18 AWG,98 L,250V/10AMP,RTANG,IEC320, RCPT X STR,NEMA 15-5P,W/CORD GRIP	S3109	ORDER BY DESCRIPTION
	119-5061-01			1	POWER SUPPLY:25W,5V 5A,CONCENTRIC 2MM,90-265V, 47-63 HZ IEC,15X8.6X5 CM, UL,CSA, TUV,IEC,SELF	14310	SW108KA0002F01
					OPTIONAL ACCESSORIES		
	P6434*			3	P6434 MASS TERMINATION PROBE, Opt 21 *	80009	ORDER BY DESCRIPTION
	161-0104-05			1	CA ASSY,PWR:3,1.0MM SQ,250V/10A,2.5 METER,RTANG, IEC320,RCPT,AUSTRALIA,SAFETY CONTROLLED	TK1373	161-0104-05
	161-0104-06			1	CA ASSY,PWR:3,1.0MM SQ,250V/10A,2.5 METER,RTANG, IEC320,RCPT,EUROPEAN,SAFETY CONTROLLED	TK1373	ORDER BY DESCRIPTION
	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),UK PLUG,(13A FUSE),UNITED KINGDOM,SAFETY CONTROLLED	TK2541	ORDER BY DESCRIPTION
	161-0167-00			1	CA ASSY,PWR:3,0.75MM SQ,250V/10A,2.5 METER,RTANG, IEC320,RCPT,SWISS,NO CORD GRIP,SAFETY CONTROLLED	S3109	ORDER BY DESCRIPTION

*** Check the P6434 manual for detailed replaceable part information.**

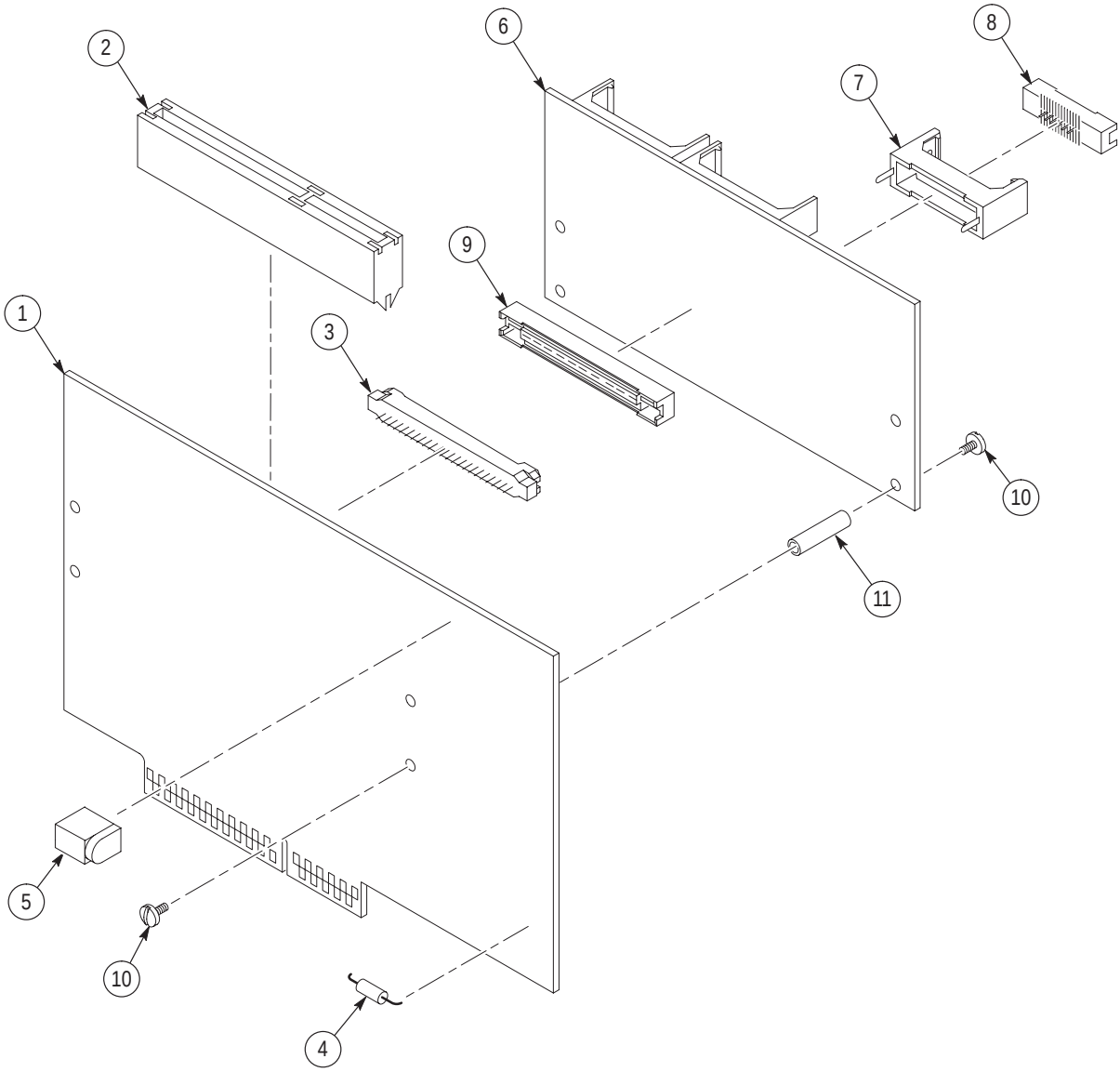


Figure 5–1: AGP4XT probe adapter exploded view