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MP1630B
Auto Adjust Application
Operation Manual

First Edition

To ensure that the equipment is used safely, read the "For Safety" in the MP1630B Digital Data Analyzer Operation Manual first.

Keep this manual with the equipment.

ANRITSU CORPORATION

APR.
2003

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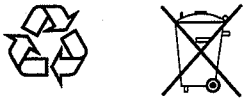
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MP1630B
Auto Adjust Application
Operation Manual

10 June 1998 (First Edition)

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II.

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Section 1 Overview

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1.1 Product Overview

The MP1630B Auto Adjust Application (hereinafter referred to as "the software") is a software program added to the MP1630B Digital Data Analyzer as the special application to allow automatic burst trigger delay settings for PDS module measurement. This function is called Auto Adjust function.
To run the software, install it in the MP1630B mainframe.

NOTE:

The MP1630B Auto Adjust Application has been already installed in the MP1630B at shipment.
If the software is required to be re-installed due to the damage of the hard disk, read "Recovering Software" in the MP1630B Digital Data Analyzer Operation Manual.

1.2 Organization of This Manual

This manual is organized with four sections listed below:

Section	Description
Section 1 Overview	Product overview, organization of the operation manual, unit configuration, pre-requisite measurement system
Section 2 Preparation Before Use	Connection, using the application stably
Section 3 Setup	Starting and exiting from Auto Adjust
Section 4 Operation	Before running, description of the main screen, selecting the object channels

1.3 MP1630B Unit Configuration

To start the software, the MP1630B units should be configured as below.

Slot 1: MU163000A 200M Clock Generator Unit (CG)
Slot 3: MU163020B 200M 16CH Pulse Pattern Generator Unit (PPG)
Slot 4: MU163040B 200M 16CH Error Detector Unit (ED)

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1.4 Prerequisite Measurement System

The software requires the PDS up/down stream module measurement system as shown in Fig. 1-1.

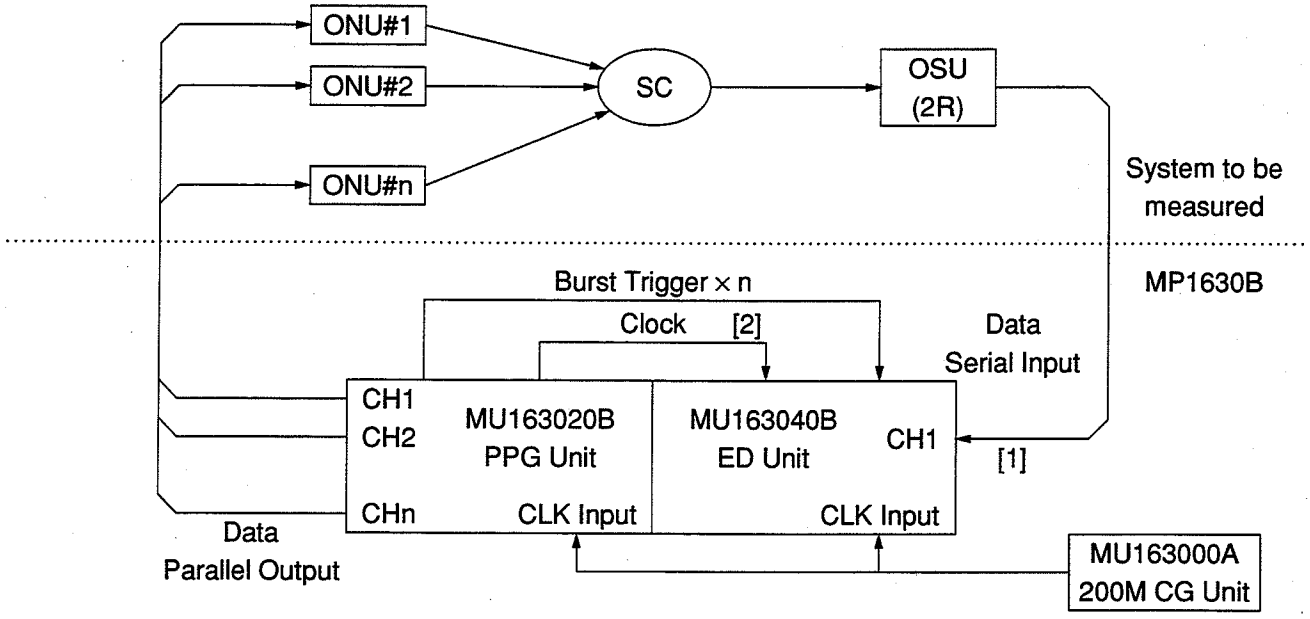


Fig. 1-1 PDS up stream line

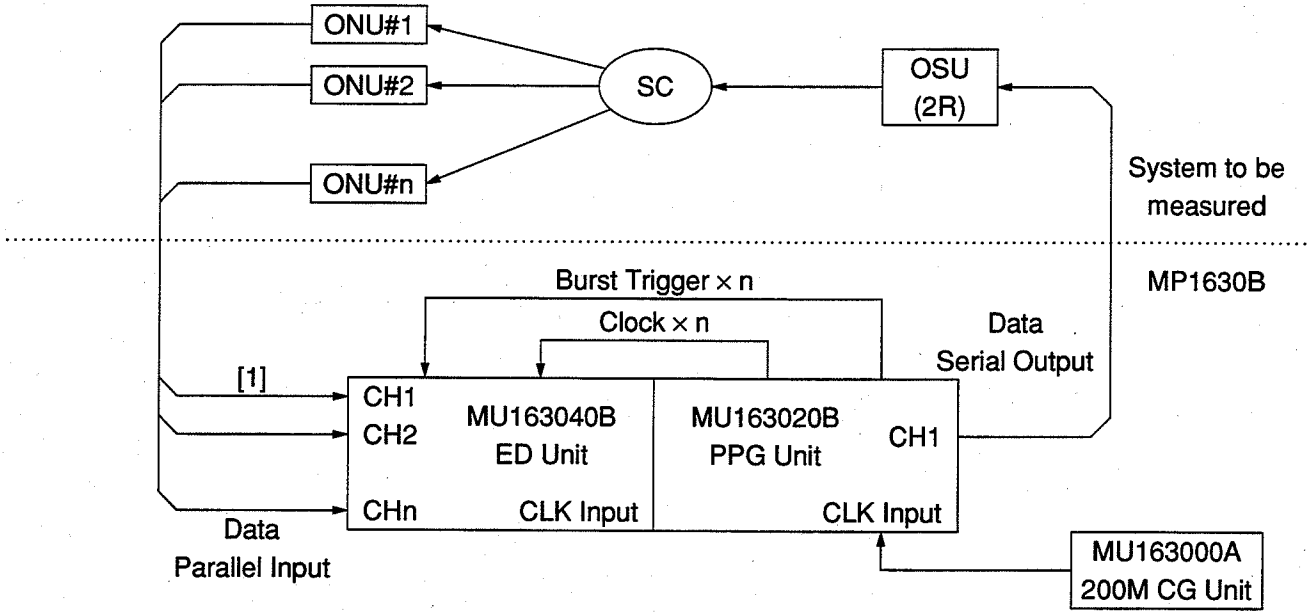


Fig. 1-2 PDS down stream line

- Generally, the line length between ONU and OSU differs individually. Therefore, for data [1] received by the ED unit, the bit phase between channels is not unified.
- The Auto Adjust function is effective even when a recovered clock is not input from OSU to the ED unit. In this case, the system uses clock [2] as loopback from the CG unit to the ED unit.
- The reference clock phase to be input to the ED unit becomes common to CH1 for all the up stream channels, and becomes common to the reference clock for down stream.

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1.5 Functions

The Auto Adjust functions implemented by this software are detailed as below:

(1) Measure the bit delay in the line up to the point where ED receives the data sent from PPG and set the burst trigger delay of each channel to the optimal value.

(2) Set the bit phase of ED inputted clock to the optimal value.

(3) Automatically set the bit delay of the AUX output reset signal to fit it to the burst trigger delay.

(4) Save the optimized burst trigger delay and the ED bit phase listed in (1) to (3) above under the following file name:

Setting file save destination directory, file name

C:\MP1630B\ADJUST\RESULT\ATAJST.env

NOTE:

To set the AUX output in (3), the software updates the port condition setting as shown below.

- A channel to be auto adjusted is set at Source CH.
- The output type is reset signal.

When the position of the reset signal given to the envelope signal is at POS, POS Delay is updated. When the signal is set at NEG, NEG Delay is updated. The updated value is the burst trigger delay value obtained in (1).
Fig. 1-3 shows the AUX output setting screen for the MU163020B Pulse Pattern Generator Unit.

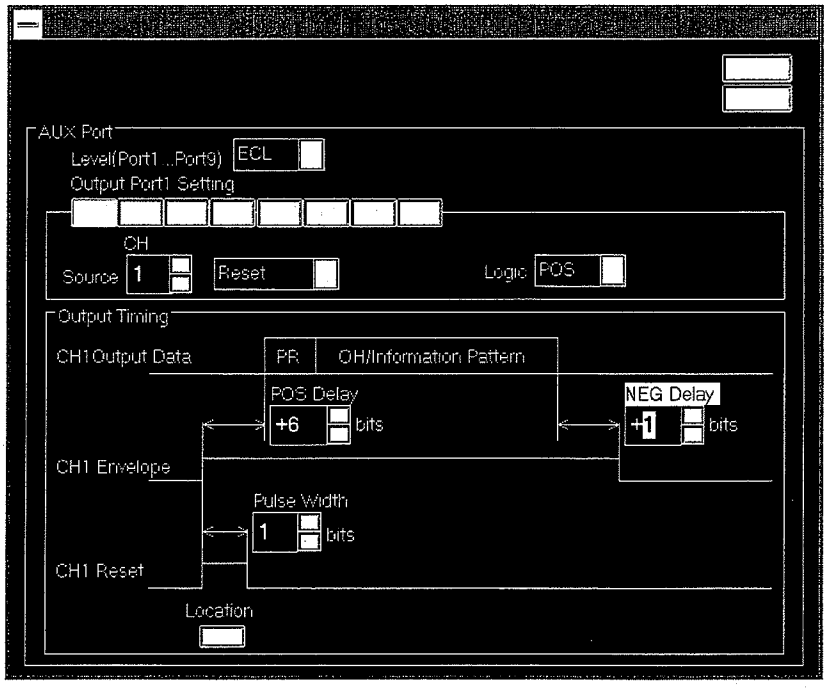


Fig. 1-3 AUX output setting screen for the MU163020B Pulse Pattern Generator Unit

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NOTE:

1. After executing (4), exit from the MP1630B Auto Adjust Application.
   Then, start the MP1630B Digital Data Analyzer. When using Quick Open to read the file described in (4), the data set by this software can be run on the MP1630B Control Application.

   The MP1630B Auto Adjust Application is subject to the following usage restrictions:

   The MP1630B Auto Adjust Application cannot run while the MP1630B Digital Data Analyzer or the MP1630B Selftest Application is running. Be sure to exit from those applications before starting the MP1630B Auto Adjust Application.

2. The MP1630B Auto Adjust Application performs the detection at the optimum point of the input signal to the MU163040B. However, the detection may not be performed at the optimum point due to the using environment. So, after executing the Auto Adjust, re-check the signal adjustment between the MU163020B and DUT, the phase adjustment between the output signal from DUT and the MU163040B, and the burst trigger delay setting.

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Section 2 Preparation Before Use

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2.1 Connection

For connection between the MP1630B units, see the operation manual of each unit and Fig.1-1 and Fig.1-2 in Section 1 "Overview" of this manual.

2.2 Using the Application Stably

This software runs when installed on the MP1630B mainframe.
The MP1630B mainframe contains various software programs such as Microsoft® MS-DOS® operating system, Microsoft® Windows® operating system and drivers that control the devices.

You can change the Windows® operating environment using the Control Panel and Windows Setup program. However, if you change the operating environment in a manner not described in this operation manual or the separate MP1630B Operation Manual, stable application operation is not guaranteed.

Do not change the Windows® operating environment in a manner or for a purpose that is not described in this operation manual.

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Section 3 Setup

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3.1 Starting and Exiting from Auto Adjust

In the software screen operation, the Microsoft® MS-DOS® operating system and the Microsoft® Windows® operating system (hereinafter abbreviated as Windows®) are used. This is why the software can operate in the same manner as an application on Windows®. This sub-section describes how to start and exit from the software, including points regarding operation that should be kept in mind.

3.1.1 Starting the MP1630B Auto Adjust Application

To start the MP1630B Auto Adjust Application, follow the steps below:

(1) Turn ON the MP1630B power supply. The system gets started and then the MP1630B automatically start.

(2) On the MP1630B set the Auto Adjust Application to be executable. For the setting conditions to execute Auto Adjust, see Section 4.1.1 "Restrictions on settings of the MP1630B mainframe" of this manual.

(3) Exit from the MP1630B. To do this, see the separate MP1630B Operation Manual.

(4) Upon completion of the above settings, double-click the Auto Adjust icon in the MP1630B Digital Data Analyzer group on the program manager. The Auto Adjust Application starts running.

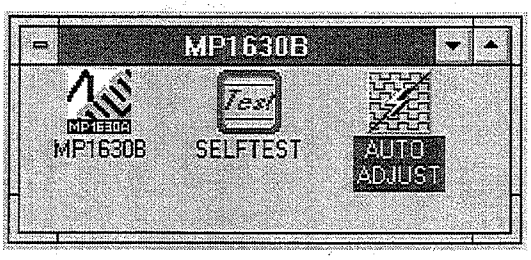


Fig. 3-1 MP1630B group

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3.1.2 Exiting from the MP1630B Auto Adjust Application

To exit from the MP1630B Auto Adjust Application, follow the steps below:

(1) Select [File-Exit] from the parent window menu bar. The software is terminated and only Windows® is running.

(2) Select [File]-[Exit Windows] from the Windows® program manager. Windows® is terminated.

(3) The MP1630B menu program runs.
Turn OFF the power supply while running the program.

NOTES:

1. If you exit from the software in any manner other than the one specified above (for example, by turning OFF the power switch on the front panel while running the software), the hard disk may be broken. To protect the hard disk, observe the above steps except when an accident occurs (for example, when power loss occurs or a power cable is unplugged by accident). For countermeasures in areas where power loss is likely to occur, see the separate MP1630B Operation Manual.

2. Do not turn OFF the power supply during access to HDD (when the access lamp lights). Otherwise, the hard disk may be broken.

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4.1 Before Starting the Software

4.1.1 Restriction on settings of the MP1630B mainframe

The MP1630B Auto Adjust Application has restrictions on the MP1630B mainframe settings. If the MP1630B mainframe is not set as below, the software will not function normally.

Table 4-1 Restrictions on settings of MP1630B

Screen	Setting item	Setting value	Reference
Setup: System	System Mode	Normal	Section 6.4 NOTE 1
Setup: Setup	Pattern Mode (Setting at both PPG and ED)	PON	Section 5.3.1, Section 5.3.2 NOTE 2
Setup: Pattern	Burst Mode (Setting at PPG)	INT	Section 5.3.3 NOTE 2
	Burst Sync Mode (Setting at ED)	EXT for all channels	Section 5.8.2 NOTE 2
	Pattern	The pattern length (the sum of all the block length) is 16 bits or more.	Section 5.3.4, Section 5.3.5 NOTE 2
	Enable CHs	Same setting for both PPG and ED.	

NOTE 1:

See the sepatate MP1630B Digital Data Analyzer operation manual.

NOTE 2:

See the sepatate MU163020B 200M 16CH Pulse Pattern Generator Unit and MU163040B 200M 16CH Error Detector Unit operation manual.

4.1.2 Setting items changed after executing the software

Of the MP1630B setting items, the following items shown in the table below, are changed after executing the software.

Table 4-2 Setting items changed after executing Auto Adjust

Screen	Setting item	Changed setting value	Reference NOTE1
Setup: System	Slot 3 & Slot 4 Common Setting Pattern	OFF	Section 6.2
Setup: Clock	Grouping (Setting at ED)	OFF	Section 6.1
Setup: Pattern	Grouping (Setting at both PPG and ED)	OFF	
Setup: Trigger I/F	Grouping (Setting at PPG)	OFF	

NOTE 1:

See the sepatate MU163020B 200M 16CH Pulse Pattern Generator Unit and MU163040B 200M 16CH Error Detector Unit operation manual.

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4.1.3 Setting items changed temporarily during execution of the software

Of the MP1630B setting items, the following items shown in the table below are changed temporarily during execution of the software. After execution, the software resets these setting values to the original ones. However, if power failure occurs during execution, the software cannot restore the setting values.

Table 4-3 Setting items changed temporarily during Auto Adjust processing

Screen	Setting item	Remarks
Setup: Pattern	Number of blocks	Setting at both PPG and ED
	Setting at both PPG and ED	
	Individual block length	
	Individual block pattern type	
	Bit pattern	
	Pattern bit	
	PRGM Logic	
	PRGM Auto Sysnc	Setting at ED
Setup: Trigger I/F	Trigger Output Source/CH/Block	Setting at PPG
Test Menu: Error Addition	Addition	All channels
Test Menu: Measurement	Detected Error Mode	Setting when the Test Item is "Error/Alarm".
	Detected Error Block	
	Timed Start	
	MEAS. Time	
	MEAS. Mode	
	MEAS. CH	Setting when the Test Item is "Delay (Mode2)".
	Time Out	
	Detected Pattern	

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4.2 Description of the Main Screen

Fig. 4-1 shows the main screen.

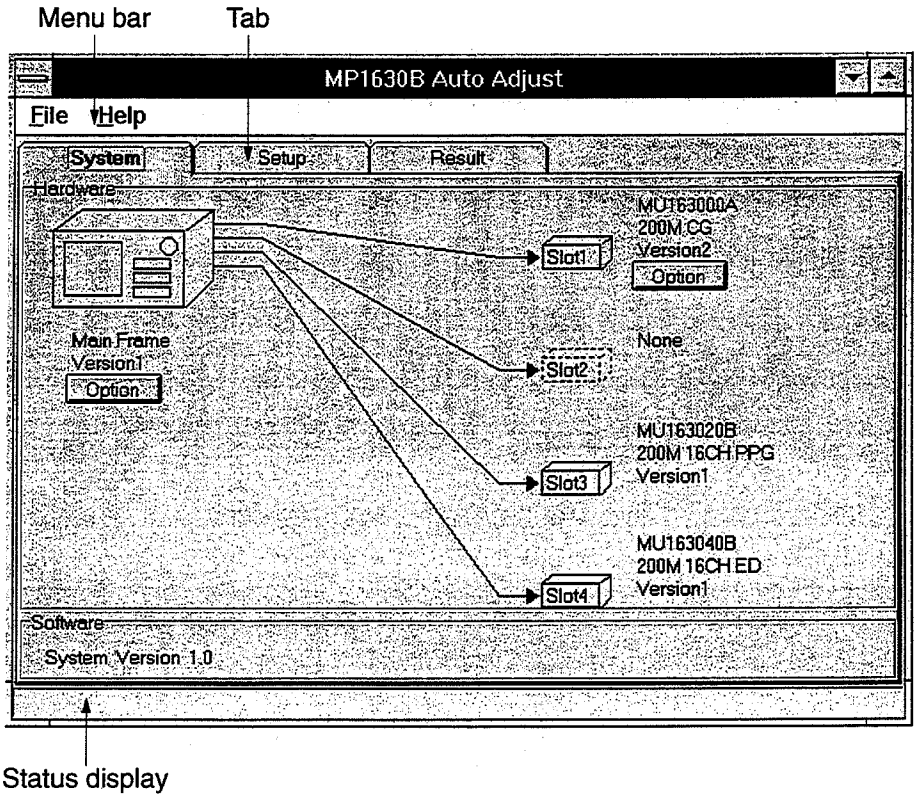


Fig. 4-1 Main screen (System panel)

Tab

Change the panel by clicking the tab. All the screens are composed of the following 3 panels.

(1) System panel

Displays the installation status of units.

(2) Setup panel

Selects the channels to be auto adjusted.

The software performs delay measurement as the intermediate processing during execution of Auto Adjust. This panel allows you to set the time-out value used for the delay measurement.

(3) Result panel

Starts and stops Auto Adjust. Displays the execution results of Auto Adjust.

Menu bar

(1) File menu

Exit ..... Terminates the software.

(2) Help menu

About ... Displays the software version.

Status display

Displays the progress of the Auto Adjust processing.

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4.3 Display of Installation Status of MP1630B

The software displays the status of the MP1630B mainframe and composed units by the following items below:

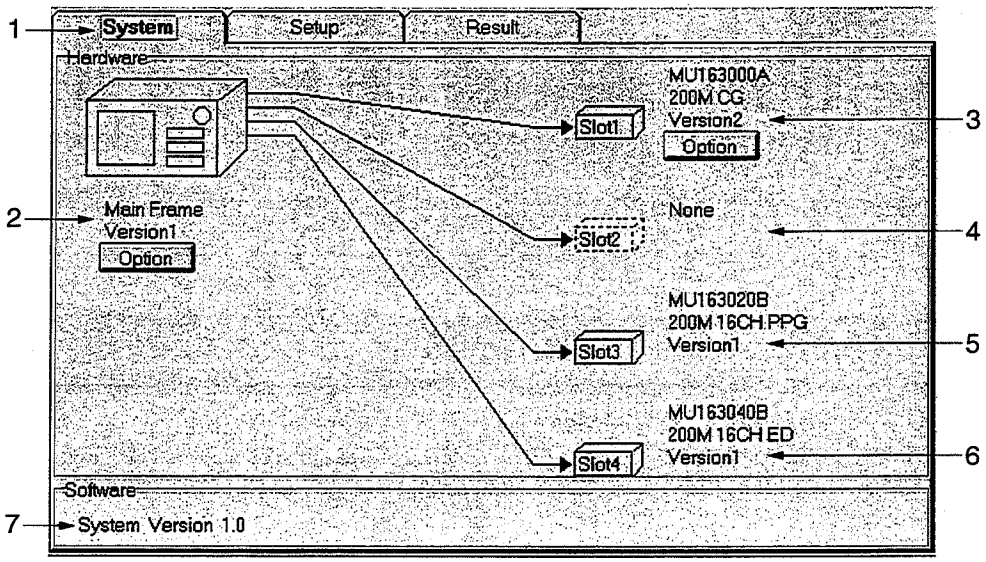


Fig. 4-2 System panel

Item	Description
1	Opens the System panel.
2	Displays the information on the MP1630B mainframe by the followings: Version ..... Displays the hardware version of the mainframe. Option button ..... Displays the options installed to the mainframe when the button is clicked. The Option button is disabled when no option is installed.
3	Displays the information on Slot 1 by the followings. Model name ..... Displays the model of the unit installed. Version ..... Displays the hardware version. Option button ..... Displays the options installed to the Slot 1 when the button is clicked. The Option button is disabled when no option is installed.
4	Displays the information on Slot 2 by the followings: Model name ..... Displays the model of the unit installed. Displays "None" if no unit is installed. Version ..... Displays the hardware version. Option button ..... Displays the options installed to the Slot 2 when the button is clicked. The Option button is disabled when no option is installed.

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Item	Discription
5	Displays the information on Slot 3 by the followings: Model name ..... Displays the model of the unit installed. Version ..... Displays the hardware version. Option button ..... Displays the options installed to the Slot 3 when the button is clicked. The Option button is disabled when no option is installed.
6	Displays the information on Slot 4 by the followings: Model name ..... Displays the model of the unit installed. Version ..... Displays the hardware version. Option button ..... Displays the options installed to the Slot 4 when the button is clicked. The Option button is disabled when no option is installed.
7	Displays the version of the MP1630B Auto Adjust Application.

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4.4 Selecting the Object Channels

Select the channels to be automatically adjusted on the Setup panel by the following the procedures below.

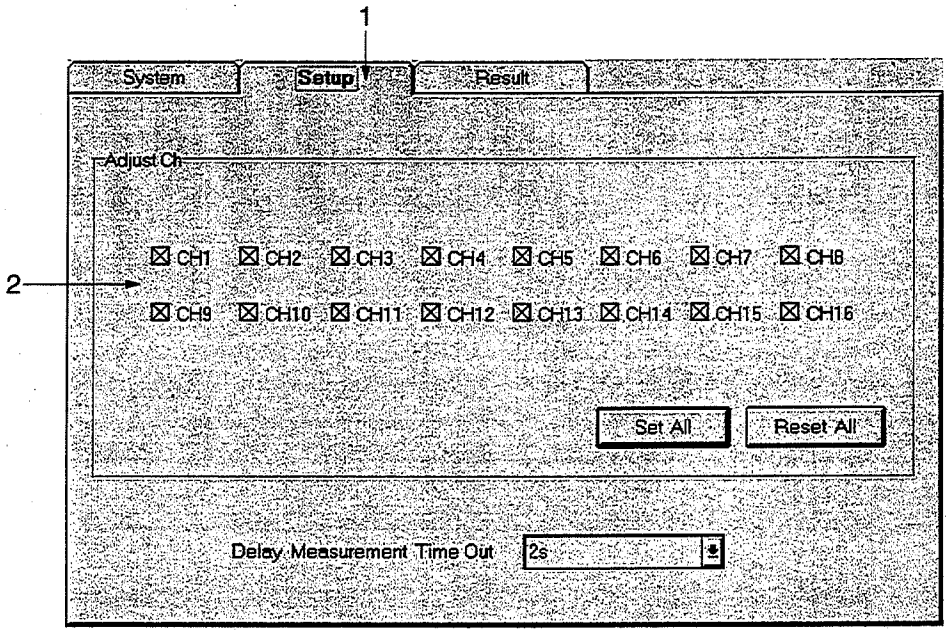


Fig. 4-3 Setup panel

Step	Procedure
1	Open the Setup panel.
2	Check the channels to be automatically adjusted by clicking the characters that indicates the channels to toggle Checked (X)/Not Checked in the left box. To check all the channels at a time, click the Set ALL button. To leave all the channels unchecked at a time, click the Reset ALL button.

NOTE:

When a channel whose pattern length (sum of individual block length except PR) is less than 16 bits is selected to be automatically adjusted in the Setup panel, an error message is issued to stop the Auto Adjust processing. Although you can select a channel to be automatically adjusted which does not generate patterns using the Enable CHs setting (Setup: Pattern screen) on MP1630B, an error message is issued to stop the Auto Adjust processing.

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4.5 Setting Time-out

The software measures the data delay at each channel, reflects the delay to the burst trigger delay setting and then adjusts the clock phase of the ED unit. To measure the data delay, the software instructs Delay (Mode2) measurement to the MP1630B.

Set the Time-out in Delay (Mode2) measurement using the software by following the procedures below.

For details on Delay (Mode2) measurement, see Section 5.12 "Measuring delay" in the MU163020B 200M 16CH Pulse Pattern Generator Unit and MU163040B 200M 16CH Error Detector Unit operation manual.

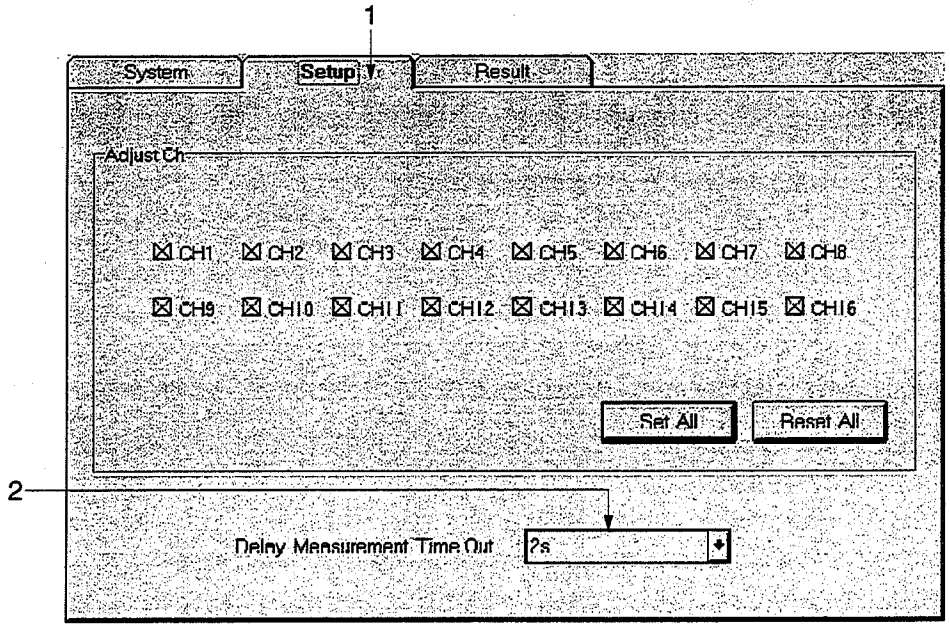


Fig. 4-4 Setup panel

Step	Procedure
1	Open the Setup panel.
2	In the "Delay Measurement Time Out" drop down list, select the time-out value from the followings: 0.5s ..... Set the time out to 0.5 sec. 1s ..... Set the time out to 1 sec. 2s ..... Set the time out to 2 sec. 5s ..... Set the time out to 5 sec. 10s ..... Set the time out to 10 sec.

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4.6 Starting Auto Adjust

Start the Auto Adjust by following the procedures below.

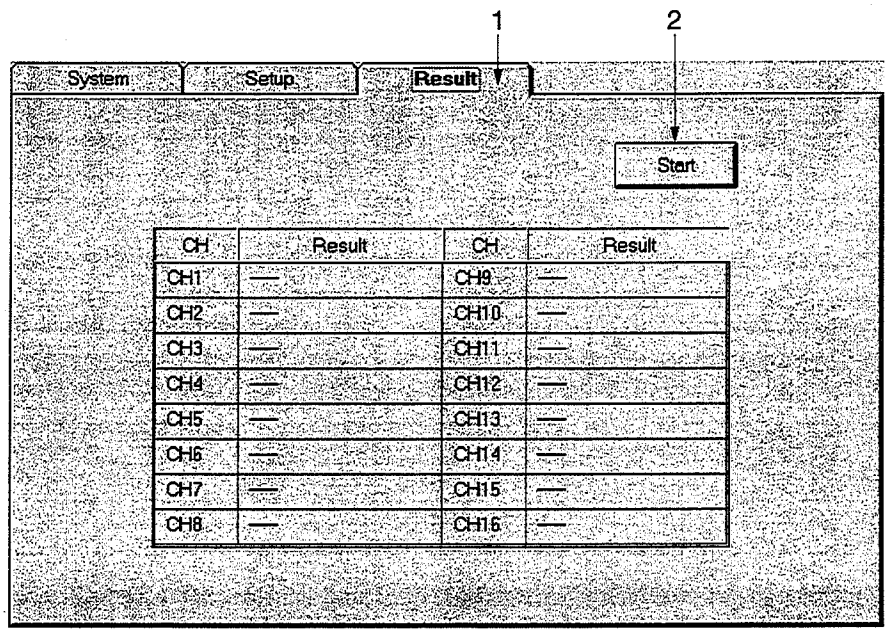


Fig. 4-5 Result panel

Step	Procedure
1	Open the Result panel.
2	Click the Start button to start Auto Adjust. During the Auto Adjust processing, this button functions as the Stop button and only the stop operation is the enable one. To interrupt the operation halfway, click the Stop button.

NOTE:

During the Auto Adjust processing, the software changes a part of the settings on MP1630B. These settings are not reset if the Auto Adjust processing is interrupted with the Stop button.
When restarting the Auto Adjust with the Start button after interruption with the Stop button, the Auto Adjust operation starts over from the beginning, not from the interrupted point.

During measurement, the current operation and progress information appear in the status display area (see Fig. 4-1).

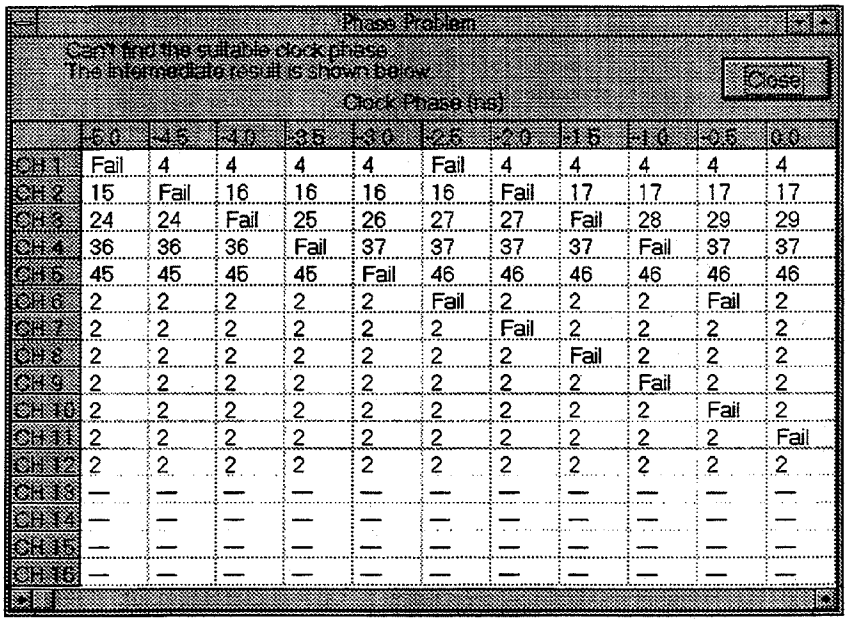
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4.7 Result Display

The following result data appears during and after the Auto Adjust processing below.

- "Pass" Indicates that Pattern Sync Loss didn't occur in the Error/Alarm measurement.
- "-----" Indicates that Pattern Sync Loss occurred in the Error/Alarm measurement. After Auto Adjust, indicates that no clock phase was found which made all the object channels free of errors.
- "Fail" Indicates that measurement failed in the delay measurement.
- "Time out" Indicates that measurement reached time-out in the delay measurement.
- "*****" Indicates that the corresponding channel was not selected to be auto-adjusted.

When no clock phase was found which made all the Auto-Adjust object channels pattern sync loss doesn't occur, the Phase Problem dialog box appears. In this dialog box, you can view the clock phase matching/mismatching to individual channel data phase by clock phase.



	-5.0	-4.5	-4.0	-3.5	-3.0	-2.5	-2.0	-1.5	-1.0	-0.5	0.0
CH 1	Fail	4	4	4	4	Fail	4	4	4	4	4
CH 2	15	Fail	16	16	16	16	Fail	17	17	17	17
CH 3	24	24	Fail	25	26	27	27	Fail	28	29	29
CH 4	36	36	36	Fail	37	37	37	37	Fail	37	37
CH 5	45	45	45	45	Fail	46	46	46	46	46	46
CH 6	2	2	2	2	2	Fail	2	2	2	Fail	2
CH 7	2	2	2	2	2	2	Fail	2	2	2	2
CH 8	2	2	2	2	2	2	2	Fail	2	2	2
CH 9	2	2	2	2	2	2	2	2	Fail	2	2
CH 10	2	2	2	2	2	2	2	2	2	Fail	2
CH 11	2	2	2	2	2	2	2	2	2	2	Fail
CH 12	2	2	2	2	2	2	2	2	2	2	2
CH 13	—	—	—	—	—	—	—	—	—	—	—
CH 14	—	—	—	—	—	—	—	—	—	—	—
CH 15	—	—	—	—	—	—	—	—	—	—	—
CH 16	—	—	—	—	—	—	—	—	—	—	—

Fig. 4-6 Phase Problem dialog box

Numeric values in the Phase Problem dialog box show the setting values of burst trigger delay. "Fail" indicates that a pattern sync loss occurred because the clock supper-imposes the data cross point.
"-----" indicates that the selected channel is not to be automatically adjusted.

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4.8 Error Messages

The error messages of the MP1630B are described below.

(1) "Select Channel Error"

Cause:

A channel is not set as Enable CHs on the MP1630B is set as a channel to be automatically adjusted.

Corrective action:

Change the Enable CHs setting (Setup: Pattern screen) on the MP1630B.
Remove channels (which are not set in Enable CHs setting on the MP1630B) from the object channels to be automatically adjusted.

(2) "System Mode Illegal"

Cause:

The system mode is set in the Measurement Power Fail Mode.

Corrective action:

Change the system mode setting (System: System screen) from "Measurement Power Fail Mode" to "Normal" on the MP1630B.

(3) "Pattern Length Illegal Channel No. #"

Cause:

The sum of pattern length in the channel # pattern setting is less than 16 bits.

Corrective action:

Change the pattern setting (number of blocks, block length) on the MP1630B so that the pattern length exceeds 16 bits.

(4) "ED Burst Sync Mode Illegal Channel No. #"

Cause:

Channel # Burst Sync Mode is set to INT on the MP1630B.

Corrective action:

Set the Burst Sync Mode setting (ED unit Setup: Pattern screen) to EXT on the MP1630B.

(5) "PPG Burst Mode Illegal"

Cause:

Burst Mode is set to EXT on the MP1630B.

Corrective action:

Set Burst Mode (PPG unit Setup: Pattern screen) to INT on the MP1630B.

(6) "PPG Pattern Mode Illegal" "ED Pattern Mode Illegal"

Cause:

Pattern Mode of PPG or ED is set to Normal on the MP1630B.

Corrective action:

Set Pattern Mode (Setup: Setup screen) of the corresponding unit to PON on the MP1630B.

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(7) "Only one "Auto Adjust" can run at a time."

Cause:
The MP1630B Auto Adjust Application has already been running.

Corrective action:
Exit from the current MP1630B Auto Adjust Application.

(8) "Access denied. Make sure the disk is not full or write-protected."

Cause:
In the MP1630B HDD, C-drive unused space is insufficient.

Corrective action:
In the MP1630B HDD, remove unnecessary files from C-drive to increase the unused space.

(9) "Please select Adjust Channels."

Cause:
In the Setup screen of the MP1630B Auto Adjust Application, the object channels is not set.

Corrective action:
Select the object channels.

(10) " 'Back-up File can't be found. MP1630B setting data can't be recovered."

Cause:
A back-up file generated by the MP1630B Auto Adjust Application to recover the setting status is not found.

Corrective action:
The setting values cannot be recovered to the values given before the MP1630B Auto Adjust Application is executed.

(11) "Clock Loss Occurred."

Cause:
A clock loss occurs during execution of the MP1630B Auto Adjust Function.

Corrective action:
Check the connection and signal status, and re-execute Auto Adjust Function.

(12) "Cannot Open [IEEE488.2 Handler]"

Cause:
A problem arises in the MP1630B Auto Adjust Application or MP1630B.

Corrective action:
Turn OFF the power supply once. Then, turn it ON again. If the same message appears, see "Recovering software" in the separate MP1630B operation manual to re-install the software.

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(13) "Auto Adjust software is not executable. Exit from 'MP1630B' or 'Selftest' program."

Cause:

The MP1630B or MP1630B Selftest program is running.

Corrective action:

Exit from the MP1630B or MP1630B Selftest program.

(14) "System error occurred."

Cause:

The MP1630B Auto Adjust Application cannot be executed for any reason.

Corrective action:

Turn OFF the power supply once. Then, turn it ON again. If the same message appears, see "Recovering software" in the separate MP1630B operation manual to re-install the software.

(15) "Cannot execute 'Auto Adjust'. MU163200A, MU163020B and MU163040B are required to execute this program."

Cause:

The above three units are not installed in the MP1630B.

Corrective action:

Install the specified units in the MP1630B.

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