MULTIMEDIA MODEM PLUS USER'S GUIDE

FOR USAGE TO UPGRADE IBM MULTIMEDIA MODEM

(MOD 715 P/N - 13H6715)

FIRST EDITION (DECEMBER 1995)

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ABOUT THIS BOOK

This book is intended to explain how to install and use the IBM Multimedia Modem Plus. You should have some experience with installing adapters in computers and be familiar with using the operating system on your computer before attempting to install this product.

This book contains:

- An introduction
- How to install and configure the software
- How to use the Multimedia Modem Plus features
- Troubleshooting information
- Specifications

 Be sure to read through the software installation sections before you start the installation procedure. If you are still unsure of your ability to install the Multimedia Modem Plus after reading the installation sections, ask an experienced technician for help or contact your technical support representative. The following terms are used in this book.

IMPORTANT: A condition that can adversely impact the operation of your computer.

NAVIGATION: Identifies instructions on how to get to the function that is described.

WARNING: A word for calling attention to the possibility of damage to a program, device, or system, or to data.

NOTE: The illustrations in this publication might be slightly different from your hardware.

INTRODUCTION

The IBM Multimedia Modem Plus combines high-quality audio and telephony functions on a single 16-bit ISA adapter in your computer. The adapter is based on the IBM Mwave DSP, and makes it easy to control telephone, fax, and data communication and to enjoy high-quality stereo sound, all from your computer desktop. The Multimedia Modem Plus provides the capabilities of a reliable 28 800 bps modem and 14 400 bps fax. Mwave DSVD allows you to share voice and data over the same phone line. High quality audio is provided with 32 voice, 128 instrument MIDI wavetable synthesis with special effects features including QSOUND, chorus, reverb, and base and treble controls. In addition, major audio standards are supported including Sound Blaster Pro and MPU-401.

MWAVE SOFTWARE FEATURES

The Multimedia Modem Plus function is controlled by software downloaded to the DSP. Important functions provided by the Mwave software include:

- Sound Blaster, Sound Blaster ADPCM, MIDI, and Sound Blaster Pro emulation device drivers
- EMU sound samples
- MCI-standard compliant audio device driver
- Automatic 3-way incoming call discrimination
- Caller ID
- Fax and modem drivers with autostart capability and dynamic rate renegotiations to maintain the highest possible speed by adjusting the transfer rate to compensate for telephone line fluctuations
- User-level card diagnostics
- Enhanced Mwave Audio Mixer
- Telephone answering machine support
- Support for TAPI to allow compatibility with other applications that conform to TAPI
- Enhanced full-duplex speakerphone for clear two-way conversation while you work
- JPEG image viewer for viewing JPEG compressed image files (.JPG)

BEFORE YOU BEGIN

You might need information about the current system board settings and settings for other options that are installed in your computer. Make sure you have access to the documentation that comes with your computer and installed options.

Except for a standard screwdriver, everything you need to connect and begin using the Multimedia Modem Plus is included in this package.

RELEASE INFORMATION

Read the Release Notes found in the Multimedia Modem Plus group in Windows or the README file found in the Multimedia Modem Plus folder in OS/2 after you have completed the software installation process. These files contain important information about using your Multimedia Modem Plus that is not included in this User's Guide.

For additional information about installing and using the Multimedia Modem Plus that is not in the README file or in this User's Guide, see "Helpful Hints".

MINIMUM SYSTEM REQUIREMENTS

The Multimedia Modem Plus has the following minimum hardware and software requirements:

- AT-compatible computers with a 386SX-33MHz microprocessor (a minimum 486SX-33MHz is recommended)
- One empty, 16-bit Busmaster ISA slot
- VGA monitor and a 3.5-inch diskette drive
- 6 MB of memory (8 MB of memory is recommended)
- 17 MB of available hard disk space
- Windows 3.1 or 3.11 running in 386 enhanced mode, under DOS 5.0 or higher, OR Windows 95, OR OS/2 Warp with Multimedia support installed (WIN-OS/2 software is optional)
- Optional Rapid Resume and Wake-Up on Ring compatibility

Many IBM computer models include the Rapid Resume and Wake-Up on Ring features. See the documentation that comes with your computer to determine if these features are available for your model.

PREPARING FOR SOFTWARE INSTALLATION

If you are upgrading from the Multimedia Modem or have any other Mwave software installed in your computer, you must remove the old Mwave software to avoid conflicts with the new Mwave software. The setup program that is part of your installation package should be used to remove the old Multimedia Modem Mwave software from your hard disk drive.

INSTALLING THE SOFTWARE

Note: If you are upgrading from the Multimedia Modem or have any other Mwave software installed in your computer, you must remove the old Mwave software to avoid conflicts with the new Mwave software. The setup program that is part of your installation package should be used to remove the old Multimedia Modem Mwave software from your hard disk drive.

You can use the Multimedia Modem Plus with the following operating systems:

- DOS 5.0 or higher
- Microsoft Windows 3.1 or 3.11 under DOS 5.0 or higher
- Microsoft Windows 95
- OS/2 Warp with Windows or WIN-OS/2 installed

NOTE: During the installation process some message windows (boxes) may appear which are not addressed in this documentation, choose the default to proceed with the install process.

WHAT TO DO NEXT

- If you are installing or updating under any version of Windows, go to "Installing the Software Under Windows 3.x or Windows 95."
- If you are installing or updating under OS/2 Warp, go to "Installing the Software Under OS/2 Warp."
- If you are installing WIN-OS/2 support under OS/2 Warp with Windows application support (Blue Spine), install OS/2 support first. Then install Windows support from a WIN-OS/2 full screen session.
- If you are installing WIN-OS/2 support under OS/2 Warp for Windows (Red Spine), install Windows first in native DOS/Windows, then install OS/2 support using the Windows configuration values.
- If you are installing QuickLink Message Center or software applications that are not part of this package, read "Installing Applications Software."

INSTALLING THE SOFTWARE UNDER WINDOWS 3.X OR WINDOWS 95

Note: If you are upgrading from the Multimedia Modem or have any other Mwave software installed in your computer, you must remove the old Mwave software to avoid conflicts with the new Mwave software. The setup program that is part of your installation package should be used to remove the old Multimedia Modem Mwave software from your hard disk drive.

The setup program:

- Removes any previous version of the Multimedia Modem Mwave Modem software, if installed
- Installs the new software on your hard disk drive
- Configures your Multimedia Modem Plus
- Creates the Multimedia Modem program group in the Windows Program Manager

The following instructions are used to install under Windows 3.1, 3.11, or Windows 95:

1. Start Windows.
   a. Insert Windows Disk 1 in your diskette drive. This sample procedure uses drive A.
   b. For Windows 3.x, go to the Program Manager and click on RUN from the File menu. Continue with 3.
   c. For Windows 95, click on Start Button then click RUN from the Start menu. Continue with 3.
      Or
   d. From the Windows 95 main window, select MY COMPUTER, click on the A drive object and select SETUP from the list of programs and then start the Setup program. Continue with 4.
2. To start the setup program, type:
      A:\SETUP
      Click on OK or press ENTER.
3. Do one of the following:
   a. Click on the Complete Installation icon, to install all Mwave software then and go to 5 to continue the installation process. Complete installation is the normal selection for new installations or upgrading from Multimedia Modem.
   b. Click on the Selective Installation icon for a partial installation.
      i.   Clear the selection boxes for the products you do not want to install. Some of the following windows might not apply depending on the components you choose for your selective installation.
   c. Click on the Uninstall icon to remove any previous versions of the Multimedia Modem software from your computer. If you ever remove the Multimedia Modem Plus adapter from your computer, you must use the uninstall process to be sure that the Mwave software is removed from all directories on your hard disk drive.
   d. Click on the Exit icon to end the Setup program.
4. If you are updating from Multimedia Modem, the Setup program does the following:
   a. Informs you that it is removing the existing Mwave software without changing the Multimedia Modem data. Click on YES to continue.

      b. Asks you to verify that you want to restart Windows to remove the Mwave drivers from memory. Click on YES to continue. Windows restarts and reloads the Setup program

      c. Informs you that the Mwave software is being removed. Click on OK.

      d. Informs you that the Multimedia Modem software has been removed. Click on OK.

      e. If you are asked if you want to overwrite the Multimedia Modem settings and message files, click on NO to protect your existing settings and message files.

5. Click on OK to install the Mwave software in the default directory or type a new directory and click on OK.

> If the directory is not on your hard disk drive, click on YES to create it or click on NO and type another directory name.
>
> NOTE: If your computer does not meet the minimum system requirements for the Multimedia Modem Plus, the Setup program displays a list of deficiencies. For optimum operation of the Multimedia Modem Plus, exit the Setup program and upgrade your computer to meet the minimum system requirements. If you choose not to update, click on CONTINUE.

6. Insert Windows Disk 2 when prompted by the Setup program.

7. When the MIDI EMU Wave Samples prompt is displayed, insert EMU Disk 1 and click on OK.

8. When you are prompted for the name of the MIDI samples directory, click on OK to install them in the default directory, or type another directory name and click on OK.

9. When prompted, insert EMU Disk 2 and click on OK.

> If OS/2 is installed on your computer, you will be asked if the EMU Samples should be used for OS/2 also, click on YES

10. When the Setup program prompts you for the Mwave DOS diskette, insert DOS Disk 1 and click on OK.

> If you are upgrading from the Multimedia Modem, you are asked if you want to update your existing Mwave installation. When asked if you want to continue, Click on YES.
>
> If the Setup program prompts you for the location of the Mwave DOS files, click on OK to install them in the default directory, or type another directory name and click on OK.

11. Click on YES, if you want to automatically update the AUTOEXEC.BAT file.

12. When prompted, insert DOS Disk 2 and click on OK.

13. When asked if you want to install the MIDI EMU Wave sound samples, click on YES.

14. When the Mwave DOS software installation is complete, click on OK to return to the Setup program.

15. When the message is displayed that tells you to exit Windows, click on OK.

16. When the Installation Exit is displayed, click on YES.

CONFIGURING YOUR MULTIMEDIA MODEM PLUS FOR WINDOWS

NOTE: If you are upgrading from the Multimedia Modem or have any other Mwave software installed in your computer, you must remove the old Mwave software to avoid conflicts with the new Mwave software. The setup program that is part of your installation package should be used to remove the old Multimedia Modem Mwave software from your hard disk drive.

NOTE: You must run the CONFIG.EXE program after running Setup or your Multimedia Modem Plus will not operate properly. Your mouse does not work when you are running the CONFIG.EXE program. Use the arrow > and tab keys to move the cursor.

The configuration program CONFIG.EXE analyzes your operating system to determine and resolve any conflicts with the Multimedia Modem Plus. For most computers you can choose the Automatic Setup and Test option and the configuration program selects the correct settings.

For known conflicts and solutions, see "Troubleshooting."

To configure the Multimedia Modem Plus for Windows operating systems:

1. Do one of the following:
    • In Windows 95, select SHUTDOWN from the start menu, then select RESTART THE COMPUTER IN DOS MODE, and click on YES.
    • In Windows 3.x, exit Windows.
2. At the DOS prompt, change to directory C:\DSP2\SOLO.
        If you did not install the Mwave software in C:\DSP2\SOLO, change to the appropriate directory.
3. At the directory prompt, type CONFIG and press ENTER.
4. Select OK to enter the CONFIG.EXE program.
5. Select AUTOMATIC SETUP AND TEST and press ENTER. After tests are complete, press ENTER to continue.
        NOTE: If you connected your CD-ROM to the Multimedia Modem Plus, you must complete the CD-ROM information fields in the Setup window. For more information about these fields, see "Manually Configuring Your Multimedia Modem Plus for Windows."
        If the CONFIG.EXE program appears to hang your computer while testing the DSP DMA channel or the SB DMA channel, restart your computer. The CONFIG.EXE program stores the DMA channel conflict that occurred and avoids reselecting the DMA channel that caused the device conflict. Start the CONFIG.EXE program again and reselect the Automatic Setup and Test option.
6. If the automatic setup was successful, select EXIT to end the configuration program.
        Record the configuration information. You will it if you plan to install the Multimedia Modem Plus under both OS/2 Warp and Windows in the same computer.
7. Answer yes to the questions about updating your system files when you are prompted by the program.
8. Shutdown and restart Windows or Windows 95.

9. If a conflict was found:
a. Identify the conflict. Refer to the documentation that comes with your computer and your devices to find a setting that you can use for the Multimedia Modem Plus. For example, for COM port or IRQ conflicts, check your computer manual to find an unused COM port and IRQ pair.
b. After resolving the conflict, continue with "Manually Configuring Your Multimedia Modem Plus for Windows."

MANUALLY CONFIGURING YOUR MULTIMEDIA MODEM PLUS FOR WINDOWS

NOTE: If you are upgrading from the Multimedia Modem or have any other Mwave software installed in your computer, you must remove the old Mwave software to avoid conflicts with the new Mwave software. The setup program that is part of your installation package should to used to remove the old Multimedia Modem Mwave software from your hard disk drive.

Normally you should use the Automatic Setup and Test option to configure your Multimedia Modem Plus. However, if a conflict is found or you are using the CD-ROM controller interface, you must manually change the appropriate configuration settings.

NOTE: Use this procedure to change settings other than the CD-ROM parameters only if you are familiar with the setup of your operating system.

Depending on the complexity of your system, the configuration program might not accurately detect all system parameters.

To manually change the settings:
1. At the DOS prompt, Type CONFIG and press ENTER
2. Select OK to enter the CONFIG.EXE program.
3. Press TAB to go to Setup, and then press ENTER.
    Use the TAB keys to move the cursor. Your mouse does not work while the CONFIG.EXE program is running. Tab to the setting that you want to change. When the setting is highlighted, press the ENTER key and choose the desired value using the up and down arrow keys. When finished, press ENTER.
    The CD-ROM TYPE and BASE I/O ADDRESS must be set manually.
4. Select OK, and then press ENTER.
5. Select TEST and then press ENTER to start the configuration tests. If the tests do not complete successfully, change the settings and retest.

6. When the configuration is complete and all test have successfully completed:
   Record the configuration information. You will need it if you plan to install Multimedia Modem Plus under OS/2 Warp and Windows in the same computer.
   a. Select EXIT, and press ENTER to end the configuration program and save your configured settings.
   b. Answer yes to the questions about updating your system files when you are prompted by the program.
   c. Shutdown and restart Windows or Windows 95.

CONFIGURING MWAVE DOS

If you want to change your Multimedia Modem Plus settings to use advanced audio, telegaming, or another supported application, you must access the Mwave DOS configuration window. This window is displayed when you you start DOS or close Windows with the Multimedia Modem Plus installed. To access this window and change the DOS parameters for your session:

1. Exit Windows and start your computer in DOS.
2. From any directory, type FASTCFG and press Enter.
3. When the Fastcfg-Current Mwave DOS Settings window is displayed, select the appropriate application type for your session. Use the ARROW > and TAB keys to move the cursor.
4. Select OK to save the setting and return to DOS.
   NOTE: For further information on FASTCFG, see "Using DOS Applications."
5. Start your application. For information about how to run an application, see the documentation that comes with the application.
   You have completed the software installation process for Windows and are ready to use the Multimedia Modem Plus.

   WHAT TO DO NEXT

   • If you want to install the Multimedia Modem Plus software under OS/2 Warp continue with the next section.
   • For information about using the Multimedia Modem Plus, see "Using Voice, Fax and Data."
   • If you are installing QuickLink Message Center or software applications that are not part of this package, read "Installing Applications Software."

INSTALLING THE SOFTWARE UNDER OS/2 WARP

NOTE: The Multimedia Modem Plus software only supports OS/2 Warp Version 3.0 or higher.

NOTE: If you are upgrading from the Multimedia Modem or have any other Mwave software installed in your computer, you must remove the old Mwave software to avoid conflicts with the new Mwave software. The setup program that is part of your installation package should be used to remove the old Multimedia Modem Mwave software from your hard disk drive.

The instructions in this section explain the installation and configuration process for the Mwave software under OS/2 Warp

The setup program:

- Removes the Multimedia Modem Mwave software, if installed
- Installs the new software on your hard disk drive
- Configures your Multimedia Modem
- Creates the Multimedia Modem program desktop group

Follow this procedure to install the Multimedia Modem Plus software under OS/2 Warp:

1. Start OS/2 and verify that the IBM Multimedia Presentation Manager/2 (MMPM/2) is installed in your computer. For information about MMPM/2, see your OS/2 user's manual.
2. Insert OS/2 Disk 1 in drive A.
3. Open an OS/2 window.
4. At the command prompt, type: A:\SETUP and press ENTER.
   The Setup program takes some time to initialize.
   NOTE: If you had a Multimedia Modem previously installed in your computer, you are asked if you want to continue and overwrite the previous installation. Click on YES.
   NOTE: If you are upgrading from the Multimedia Modem or have any other Mwave software installed in your computer, you must remove the old Mwave software to avoid conflicts with the new Mwave software. The setup program that is part of your installation package should be used to remove the old Multimedia Modem Mwave software from your hard disk drive.
5. Select one of the following installation types:
   - Select the complete installation option to install all Mwave software and continue with 6. Complete installation is the normal selection for new installations or upgrading from Multimedia Modem.
   - Select the selective installation option if you only want to install part of the Mwave software. Clear the selection boxes for the software you do not want to install. Some of the following windows might not apply depending on the components you choose for your selective installation.
   - Select the uninstall option if you want to remove the Multimedia Modem software from your computer. If you ever remove the Multimedia Modem Plus adapter from your computer, you must use the uninstall process to be sure that the Mwave software is removed from all directories on your hard disk drive.

6. Click on OK to install the Mwave software in the default directory or type a new directory and click on OK. If the directory is not on your hard disk drive, click on YES to create it or click on NO and type another directory name.
7. Insert OS/2 Disk 2 when prompted by the Setup program. Click on OK to continue.
8. When prompted, insert EMU Disk 1 and click on OK.
9. When you are prompted for the name of the MIDI Samples directory, click on OK to install them in the default directory, or type another directory name and click on OK.
10. If you are asked if you want your OS/2 Mwave synthesizer to use the MIDI Samples, click on YES.
11. When prompted, Insert EMU Disk 2 and click on OK.
12. When the install successful message is displayed, click on OK.
13. When you receive the message instructing you to run CONFIGO.EXE, note the directory location and click on OK

IMPORTANT: Before shutting down OS/2 Warp, you must run the CONFIGO.EXE program located in the C:\DSP2\MWOS2\BIN directory to reconfigure your operating system.

CONFIGURING YOUR MULTIMEDIA MODEM PLUS FOR OS/2 WARP

The configuration program CONFIGO.EXE is used to configure the Multimedia Modem Plus.

To configure the Multimedia Modem Plus for OS/2 Warp:

1. Open a DOS full screen session from the OS/2 Desktop.
2. At the command prompt, type:
   CD\DSP2\MWOS2\BIN then press ENTER.
   If you installed your software in a different directory, change to that directory.
3. To start the OS/2 configuration program, type CONFIGO at the command prompt and press
   ENTER. Select OK using the ENTER key.
   Use the ARROW > and TAB keys to move the cursor.
   Your mouse does not work when you are running the CONFIGO.EXE program.
4. The CONFIGO.EXE program displays the default values to be used by your Multimedia
   Modem Plus.
   a. If you have Microsoft Windows installed, you need to make your OS/2 configuration
      settings match the Windows configuration settings determined by the CONFIG.EXE
      program. The Windows configuration settings are the settings you recorded when you
      configured your computer under Windows.
   b. If you do not have Windows installed you might have to change the default settings. If
      you connected a CD-ROM to your modem you need to change the CD-ROM TYPE and
      BASE I/O ADDRESS fields. If a CD-ROM base I/O address is part of your CD-ROM
      driver statement in the OS/2 CONFIG.SYS file, make sure the CONFIGO CD-ROM
      Base I/O Address in the list of settings matches the address in the CONFIG.SYS file.
      Use an editor, such as the OS/2 System Editor to open your CONFIG.SYS file and check
      the address.
   c. If you are aware of a COM port, IRQ, or Base I/O address conflict then check the list of
      valid settings that you recorded for the Multimedia Modem Plus. If you are not aware of
      any conflicts, select EXIT and go to 6.
5. To change settings, select Setup and press ENTER.
   Use the TAB key to highlight the setting you want to change. Press ENTER and choose
   a value using the up and down arrow keys.
   Press ENTER to accept the new value. When you finish changing the settings, select
   OK. Then select EXIT to end the CONFIGO.EXE program.
   Accept the changes and select YES to update the operating system files.
6. When the configuration for OS/2 is complete, remove the diskette, shutdown and restart your
   computer.
   NOTE: You must restart your computer when you change configuration settings using the
   CONFIGO.EXE program.

7. If your operating system restarts without error, proceed to "Updating the MMPM/2 for Multimedia Modem Plus."

     If errors occur:

          Refer to the documentation that comes with your computer and your existing devices to find an unused setting that you can use for the Multimedia Modem Plus adapter.

          If you have a COM port or IRQ identifier conflict, check your computer manual to determine if you have an unused COM port and IRQ identifier pair. After resolving the conflict, run SETUP again to change the settings.

NOTE: If an IRQ assigned to a printer port (LPT1) conflicts with one of the Multimedia Modem Plus IRQ settings, the Multimedia Modem Plus can use the IRQ if a printer is not connected to the port.

When you have successfully completed CONFIGO.EXE, select EXIT to end the program.

When the configuration for OS/2 is complete, shutdown and restart your computer.

UPDATING THE MMPM/2 FOR MULTIMEDIA MODEM PLUS

NOTE: Record the configuration information.. You can get this information by running CONFIGO.EXE from a DOS full screen session.

At this point in your installation you must update the IBM Multimedia Presentation Manager/2 for use with your Multimedia Modem Plus. No sounds can be heard under OS/2 until you make this update. The instructions are as follows:

1. Open an OS/2 window.
2. Insert the VSD diskette in your diskette drive.
3. At the command prompt, type:
    A:\SETUP and press ENTER.
4. When the IBM Multimedia Presentation Manager/2 Installation window is displayed, IBM MWAVE AUDIO should be highlighted. Click on INSTALL to start the installation program.
5. When you are asked if you want the program to update your CONFIG.SYS file, click on YES.
6. When you are asked to specify the number of devices of this type in your computer, select 1 and click on OK.
7. You will be notified that CONFIG.SYS has been changed, select OK to proceed.
8. When the window displays informing you that the installation was successful, click on OK.
9. When the program returns to the command prompt, exit the window, and remove the diskette. shutdown and restart your computer.
10. Proceed to the next section "Configuring Your Multimedia Modem Plus for WIN-OS/2."

Configuring Your Multimedia Modem Plus for WIN-OS/2

IMPORTANT: If you are not running Windows or WIN-OS/2 applications from OS/2, you can skip to What-to-do-next at the end of this section.

Follow this procedure to verify the operating system settings for the WIN-OS/2 program.

1. To change your WIN-OS/2 System Settings:
    a. Double-click on OS/2 SYSTEM on your OS/2 Desktop.
    b. Double-click on SYSTEM SETUP.
    c. Double-click on WIN-OS/2 SETUP.
    d. Click on WIN-OS/2 SETTINGS in the WIN-OS/2 3.1 Session window.
    e. In OS/2 Warp, a Category is displayed next. Select ALL DOS and WIN-OS/2 Settings and click on OK.
    f. A window is displayed containing the following settings among others. Set the following variables them to the values shown:
        i.   WIN_RUN_MODE: 3.1 Enhanced Compatibility
        ii.   HW_TIMER: On
        iii.   INT_DURING_IO: On
    g. Click on SAVE. Close all windows until you are back to the OS/2 system.
2. To change your WIN-OS/2 Command Prompt Settings:
    a. Open the Command Prompts folder, click on WIN-OS/2 full screen using mouse button 2 (mouse button 2 is normally the right mouse button).
    b. Click on Settings.
    c. Select the Sessions Tab.
    d. Select WIN-OS/2 Settings.
    e. Select all DOS and WIN-OS/2 Settings and click on OK.
    f. Select WIN_RUN_MODE.
    g. A window is displayed containing a number of variables. Set the following variables them to the values shown:
                WIN_RUN_MODE: 3.1 Enhanced Compatibility
                HW_TIMER: On
                INT_DURING_IO: On
    h. Click on SAVE. Close Settings Notebook.
    i. Repeat this procedure starting with 2.a. for the WIN-OS/2 Window icon.
3. If you have already completed the installation of the Multimedia Modem Plus under Windows close all open windows and go to "What to do next" at the end of this section.
4. If you are using OS/2 Warp with the self-contained Windows support, start a full screen WIN-OS/2 session.
5. Follow the procedure in "Installing the Software Under Windows 3.x or Windows 95." When you finish the installation procedure, return to 6. Do not run CONFIG.EXE. When the Mwave Windows diskettes have been installed, close the WIN-OS/2 session.
6. shutdown and then restart your computer.
7. Restart OS/2 and view the README.TXT by selecting the Read Me icon in the Multimedia Modem Plus program group. The README.TXT file contains important information about the Multimedia Modem Plus.

WHAT TO DO NEXT

- You have completed the software installation process for WIN-OS/2 and are ready to use the Multimedia Modem Plus
- For information about using the Multimedia Modem Plus, see "Using Voice, Fax and Data."
- If you are installing software applications that are not part of this package, read Installing Applications Software

INSTALLING APPLICATIONS SOFTWARE

Your Multimedia Modem Plus package includes application software and various on-line services starter kits. To install, follow the installation instructions for each software application.

Your installation package contains the Smith Micro QuickLink Message Center software and manual.

Use this information to install the QuickLink Message Center.

UNINSTALLING MULTIMEDIA MODEM PLUS SOFTWARE

If you ever remove the Multimedia Modem Plus adapter from your computer, you must use the uninstall process to be sure that the Mwave software is removed from all directories on your hard disk drive.

To remove DOS Mwave software:

1. Exit Windows and start DOS.
2. Change to the DSP2\MWD directory.
3. Type UNINSTALL and press ENTER.
4. Click on Y to remove the Mwave DOS software.

To remove Windows 3.x, Windows 95, and WIN-OS/2 software:

1. Start Windows or WIN-OS/2.
2. Insert Windows Disk 1 in your diskette drive
3. For Windows 3.x or WIN-OS/2, go to the Program Manager and click on RUN from the File menu. Continue with 6.
4. For Windows 95, click on Start Button then click RUN from the Start menu. Continue with 6. or
5. From the Windows 95 main window, select MY COMPUTER, click on the A drive object and select SETUP from the list of programs and then start the Setup program. Continue with 7.

6. To start the setup program, type:

   A:\SETUP

   Click on OK or press ENTER.
7. Click on the Uninstall icon to remove the Multimedia Modem Plus software from your computer.

To remove OS/2 Warp Mwave software:

 NOTE: Remove WIN-OS/2 Multimedia Modem Plus software, if installed, before running the OS/2 Uninstall program.

1. Insert OS/2 Disk 1 in drive A.
2. Open an OS/2 window.
3. At the command prompt, type:
   A:\SETUP and press ENTER.
   The Setup program takes some time to initialize.
4. Select the uninstall option if you want to remove the Multimedia Modem software from your computer.

IMPORTANT: If you want to run the uninstall option to remove the Multimedia Modem Plus, run Uninstall from a WIN-OS/2 session using the Mwave for Windows diskettes, and then run Uninstall from the OS/2 Desktop using the Mwave for OS/2 diskettes. Always run the uninstall option in WIN-OS/2 first.

After you remove all Mwave software, shutdown and restart your computer before proceeding with the new installation.

USING VOICE, FAX AND DATA

The Multimedia Modem Plus allows you to use your telephone to control voice, fax, and data from your computer. It uses the Mwave Discriminator to automatically identify and route your incoming telephone calls to a call-handler program. The call-handler program can be a voice, fax, or data application.

The discriminator runs in the background and starts when needed to answer your telephone. It automatically answers the call after the number of rings that you set in your voice application. If your voice application is not running, the call is answered on the lowest number of rings set in your fax or data application. One of the three call-handling applications (voice, fax, or data) must be active. If you do not start a program to handle the incoming call type, the discriminator plays a "Sorry.." message for that call type.
The IBM Multimedia Modem Plus provides the QuickLink Message Center for Windows and WIN-OS/2. The QuickLink Message Center includes a Call Manager program for voice and fax messages, and an On-Line Terminal Application for data (modem) messages. You can specify the types of call that QuickLink Message Center should handle. If you want to use a different voice, fax, or data program, you must start that call-handling program before the discriminator receives the incoming telephone call.

NOTE: If you do not start a voice, fax or data handling program such as Call Manager or QuickLink Message Center On-Line, the Mwave Discriminator will not route your telephone call.

MANUAL DISCRIMINATION

If you answer a telephone call before the discriminator does, the discriminator will not do any message routing. You can recover from this situation and make your application handle the call.

For example, you might answer a telephone call that is a fax message. You can manually direct the incoming call to your fax application. To use this function when you receive an incoming call, you must go to the Multimedia Modem Window and use the TO function. Select the appropriate call type from the TO drop down menu. Then you can hang up the telephone, and your application will handle the call.

NOTE: Manual discrimination only works with the telephone that is connected to your multimedia Modem Plus. It does not work for extension telephones.

SETTING MWAVE DISCRIMINATOR OPTIONS

You control the functions the discriminator performs by the options you set from the Mwave Discriminator Window.
NAVIGATE: From the Multimedia Modem, go to Mwave Discriminator and click on OPTIONS.

The Mwave Discriminator Window displays.

The Options drop down menu consists of:

- Caller ID
  If you subscribe to Caller ID through your specific telephone company, you can use this function to route voice calls directly to the appropriate application.
- DTMF Code
  You can give a caller voice instructions for them to specify if they are sending you a fax or data message.
- Settings
  You can have the Multimedia Modem play a message if you did not start an application for the incoming call type.
- Always on Top

If you want to see the Mwave Discriminator Window at all times, select OPTIONS in the Mwave Discriminator Window and click on ALWAYS ON TOP.

CALLER ID IDENTIFICATION

The discriminator can route a call directly to the application for a call type based on the caller's telephone number. If you subscribe to your telephone company Caller ID feature, then you can enter the caller's telephone number and call type (voice, fax, or data) in your caller identification (Caller ID) database. If the phone number of the incoming call matches an entry in the database, the call is routed to the application type associated with the telephone number.

NAVIGATE: From the Mwave Discriminator, go to the Options drop down menu and click on CALLER ID.

The Call Types by Caller ID Window displays.

You can add, edit and delete caller's telephone number and identification information using the Caller ID Window. Specify the call type for each caller's telephone number. The types are:
- Voice
- Fax
- Modem
- Don't Answer (a circle with a line through it)

NOTE: This function is only available if you subscribe to Caller ID through your telephone company. If you subscribe to this service, set the ring count to at least 2. This gives the discriminator time to perform its function.

DTMF CODE DISCRIMINATION

The DTMF codes allow the caller to manually discriminate the type of the incoming call. The IBM Multimedia Modem Plus routes the call based on the code the caller enters. This is particularly useful for receiving data calls.

To use the DTMF codes that you enter, record a message in your voice application prompting your caller to enter a message type code for the different call-handling applications. For example you might record the following in your message:

> Hello, you have reached Elsa Smith. To leave a message, press asterisk 1. To send a file, press asterisk 2. To send a fax, press asterisk 3.

If your caller presses asterisk 3, the Mwave Discriminator then knows to route this call to the fax application. For you to complete this set up, you must also record the same codes in in the Select DTMF Codes Window.

NAVIGATE: From the Mwave Discriminator, go to the Options drop down menu and click on DTMF CODE.

The Select DTMF Codes for Call Types Window displays.

To prepare the Mwave Discriminator for DTMF Codes:

- Type the same call type code that you use in your voice application message.
- Click on the DISCRIMINATE USING DTMF CODES or the blank space next to it to enable the DTMF discrimination.
- Type the discriminator wait time. Make the time at least 15 seconds to allow your caller sufficient time to hear your greeting and press a number.
- Click on OK.

When you use the DTMF Code function, all callers must enter a DTMF code before the Mwave Discriminator routes a call.

The time you give the caller to respond also gives you time to recover if you answer a call before the discriminator routes the call. During this time, you can use the manual discrimination with the TO function to route the incoming message to your application.

DISCRIMINATOR SETTINGS

You can specify and control several discriminator functions such as:

- Area code
  If you set the default area code to your local area code, do not enter the area code for local numbers in the Caller ID database. If the Caller ID data received over your telephone line contains the local area code, the discriminator uses the area code that you entered as the default to match the incoming number to a Caller ID database entry.

- Silence indicator
  Specify what a silence may indicate at the beginning of a message from some caller. If the discriminator detects a silence after answering a call, it can treat the message as the type that you indicate. For example, a caller's application program may start the message with silence to indicate a fax or data message.

- Set up discriminator messages
  You can edit three not-available messages and one initial greeting message using the message dialog box. If your voice application is not running and the discriminator answers the telephone, it plays your voice "Sorry." message. Otherwise, your initial greeting plays when the discriminator answers the telephone.
  The discriminator comes with default messages that you can use if you do not want to record your own.
  When your voice application is not running, you can record or edit messages using the record, play, and stop buttons. You can use a microphone or your telephone to record your messages.

You can change these controls from the Discriminator Settings Window.

NAVIGATE: From the Mwave Discriminator, go to the Options drop down menu and click on SETTINGS.

The Discriminator Settings Window displays.

USING IBM WAKE-UP ON RING

To use Wake-Up on Ring, your computer must have the Rapid Resume and Wake-Up on Ring capabilities. See the documentation that comes with your computer if you have any questions.

IBM Multimedia Modem Plus allows your computer to receive incoming voice, fax, or data calls even if the computer is turned off or suspended. The incoming call activates the IBM Multimedia Modem Plus message handling function.

To enable Wake-Up on Ring on computers that support this feature:

1. Enable Rapid Resume. Select the options you desire, such as automatic power off.
2. Enable the Wake-Up on Ring feature.
3. Open the fax application installed on your computer.
4. Ensure that your fax application is ready to receive a fax.
5. Power off the computer.

USING MWAVE DSVD

You can use the Mwave DSVD communication capability to carry on a conversation and share data with another person at the same time over one telephone line. The IBM Multimedia Modem Plus provides a voice over data function with the caller's computer system. With this capability you can carry on a telephone conversation with a person at the same time you are sending data.

NOTE: The modem that you are connecting to must be another IBM Mwave Modem supporting DSVD.

Use the following procedure to start a DSVD communication session. Steps 1 and 2 must be completed by both parties.

1. Start your data communication or terminal software such as the QuickLink Message Center On-Line terminal application.

NAVIGATE: Go to the QuickLink Message Center, and click on ON-LINE. You can also use other terminal emulators such as the one that your system might provide.

The QuickLink Message Center On-Line Window displays.

2. To start a DSVD session, type the following AT command:

   AT-SSE=1

   and press RETURN or ENTER. To find information on this and other AT commands, see "Using the Mwave Modem Command Reference."

3. Click on DIAL on the tool bar to place a telephone call.

4. Type the telephone number, then click on OK.

   The modems negotiate a connection and your session is connected through the data modem and through the speakerphones.

5. Use your session to talk and send data files.

6. Click on HANG UP on the tool bar to end the telephone session.

NOTE: You can also initiate the AT commands for DSVD by including commands in your modem initialization string. For example, you can use the following string with many popular communication programs:

   AT&F&similar.&similar.&similar.E1V1X4&C1&D2%E1

USING THE MWAVE MODEM

The IBM Multimedia Modem Plus allows you to view the modem's operational state. You may also need this information to help diagnose modem communication problems.

NAVIGATE: From the Windows Multimedia Modem select Mwave Modem. If you select Mwave Modem from OS/2, go to the Minimized Window Viewer to view this window. (You can change the default setting of this icon.)

The Mwave Modem Window display:

The meanings of the communication codes are:
        MR   Master Reset
        DTR Data Terminal Ready
        SD   Send Data
        RD   Receive Data
        OH   Off Hook
        CD   Carrier Detect
        AA   Auto Answer
        HS   High Speed

The Mwave Modem Window shows the current operating speed setting. You can change the operating speed by selecting Options and selecting your choice from the drop down menu.

USING THE MWAVE MODEM COMMAND REFERENCE

Information about modem commands (AT codes) and S-registers can be accessed from the modem help windows. You may want to use this information to send modem commands rather than using the modem functions provided with QuickLink Message Center On-Line.

To find the modem command information in Windows, click on the MODEM COMMAND REFERENCE in the Multimedia Modem Plus program group. In OS/2 click on OS/2 MODEM HELP in the Multimedia Modem Plus folder on the OS/2 Desktop.

USING AUDIO

You can use your applications to play or record different sound types simultaneously with audio functions of the IBM Multimedia Modem Plus.

SETTING WINDOWS AUDIO CONTROLS

You can control all of the IBM Multimedia Modem Plus audio controls for Windows and WIN-OS/2 from the Mwave Audio Mixer Window. The audio mixer lets you control the playing of audio sounds from the following audio sources:

- Input source from internal CD-ROM, line input, or microphone
- Wave files
- MIDI files

Your line input can be from external audio devices such as your stereo player.

NAVIGATE: From the Multimedia Modem, go to Mwave Audio Mixer.

The Mwave Audio Mixer Window displays.

You can independently control the settings for play and record. To specify play settings, click on the PLAY Button. To specify record settings, click on the RECORD Button.

The Audio Mixer default setting is the play mode. You do not need to keep this window open to use the play mode.

SELECTING THE INPUT SOURCE

You can control the input source the Multimedia Modem Plus uses. If you do not specify the input source, you will not get any output audio signal. Click on the input source name or empty blank next to each one to select it. You have the following input options or combination of options to choose from:

- MIC
- LINE
- CD
- MIC and LINE
- CD and LINE

CONTROLLING VOLUME AND BALANCE

You can control the volume, and balance contribution of each sound type (INPUT SOURCE, GAMES, WAVE, and MIDI). For the audio output signal you control the combined signals from all the inputs using the MASTER control. To control the volume and balance on the Mwave Audio Mixer

Window as follows:

- Drag the volume control slider up or down.
- Drag the balance control slider left or right.
- Click on MUTE to mute a sound source.

SETTING TONE CONTROLS

You can change the tone controls of the audio output signal through changing the treble and bass settings. To control the tone controls on the Mwave Audio Mixer Window:

- Drag the treble control left or right.
- Drag the bass control left or right.
- Click on the empty blank for TONE CONTROL to enable the tone controls.

ADDING SPECIAL AUDIO EFFECTS

With CD-quality digital sound controls, you can enhance the audio signal output. The Chorus creates a unified sound echo. The Reverb creates a reverberating echo. The QSOUND enhances the audio sound. You can change the special effects from the Mwave Audio Mixer Window as follows:

- Drag the chorus control up or down.
- Drag the reverb control up or down.
- Click on EFFECTS or the empty blank next to it enable these effects.

Click on the Q SOUND or the empty blank next to it to turn on QSOUND audio enhancements.

OS/2 AUDIO CONTROLS

You use the Mwave Auxiliary Control Window to control the input source for OS/2 CD-ROM, line and microphone applications. This function replaces the Mwave Audio Mixer since it is not available under OS/2.

NAVIGATE: From the Multimedia Modem folder, go to Mwave Auxiliary Control.

You do not have to specify whether you are in play or record mode since the OS/2 application will determine the mode. You must have the Mwave Auxiliary Window active for you to play or record with an OS/2 application from the following auxiliary source selections:

- Input source from internal CD-ROM and line input
- Microphone

The audio sounds for games, wave or MIDI files are available when you use an OS/2 application without going to any function to make them active.

PLAYING A CD

You provide the application to play or record audio sounds, such as the Media Player in your Accessories program group or folder. When playing a CD, you should verify the following, as needed:

1. Ensure that your CD-ROM is properly installed and the audio cable connected.
2. Ensure that the CD-ROM device drivers are loaded.
3. Ensure that the CD-ROM Base I/O address used by the Multimedia Modem Plus is the same as the Base I/O address used by your CD-ROM device driver. If you have any problems, see the documentation that comes with your operating system.
4. In Windows, ensure that the MCI CD Audio device driver is loaded. To check, open the Control Panel in the Main program group. Double-click on DRIVERS and look for the MCI CD Audio device driver in the list of Installed Drivers. If the device driver is not there, add it to the list. For more information on adding device drivers to the system, see the documentation that comes with your computer.

USING DOS APPLICATIONS

USING THE FASTCFG SCREEN

IBM Multimedia Modem Plus has the features of both a sound card and a modem that you can use for DOS applications. It supports Sound Blaster and Sound Blaster Pro applications.

NAVIGATE: Exit Windows, go to the DOS prompt, type FASTCFG, and press ENTER.

The Fastcfg Screen displays:

The FASTCFG function allows you to control how the Multimedia Modem Plus supports your DOS applications, and view your configuration settings. You can perform the following:

1. Select the Application Type that matches the DOS application you want to use. Each Application Type is predefined with certain sound, music, and modem set up options. Select the type that best matches the application you want to run by using the ARROW key to move the cursor and press ENTER to make your selection:

- Games
- Advanced Audio
- Telegame
- Advanced Modem

For example, if you select Advanced Audio, you can use Sound Blaster (SB) Pro sound emulation and play General MIDI music. If you select Telegame, you run the Multimedia

Modem Plus at 14 400 bps, and the use the Sound Blaster emulation functions for sound and music.

2. Adjust the treble and bass tone controls, and add QSOUND special effects. Select the AUDIO Button using the TAB, and press the ENTER to make these changes.

3. View your settings (IRQ, DMA Channel, and the COM Ports) relating to sound, music, and modem functions. Select the HARDWARE Button using the TAB, and press ENTER to view these settings.

4. Specify you completed the changes. select OK using TAB, and press ENTER.

The Fastcfg Screen displays for a few seconds when you start DOS and exit Windows. This may be enough time for you to make a change, or you can type the FASTCFG command at the DOS prompt to view or edit the options.

NOTES:

1. The IBM Multimedia Modem Plus configures itself for the COM Port and needed IRQ settings. These settings must match those in your application, both Port and IRQ. These settings must not conflict with other active serial ports in your system. Consult your computer documentation for the method to view and change your configuration, if required.

2. If you already have DOS game installed on your computer, you may need to run the game setup program to properly configure it for use with the Multimedia Modem.

FREEING MEMORY FOR DOS APPLICATIONS

If you have limited memory and have problems running your Sound Blaster games, use this procedure to create a system disk that you can use to restart your computer.

1. Insert a blank diskette in drive A.

2. Type MAKEBOOT A: at the C:\ prompt.

   The start diskette contains the minimum operating system files needed to play Sound Blaster games. If you require additional CD-ROM or hard disk device drivers, modify CONFIG.SYS and AUTOEXEC.BAT to load these device drivers.

   See your CD-ROM drive user's manual for more information about CD-ROM device drivers. See your game manual for information about the CONFIG.SYS and AUTOEXEC.BAT commands.

3. Restart your computer with the new diskette before playing a Sound Blaster game.

USING THE JPEG IMAGE VIEWER

The JPEG Image Viewer provides a method of viewing compressed JPEG files. You can use the Image Viewer to open JPEG files produced by digital cameras or down loaded from an online service.

To start the Image Viewer:

NAVIGATE: From the Multimedia Modem go to Image Viewer.

To open JPEG files and view them in the JPEG Image Viewer Window:

1. Click on the File drop down menu.

2. Select OPEN or PHOTOGRAPH.

3. Use Browse to locate the JPEG file.

4. Click on OK.

NOTES:

1. The JPEG Image Viewer requires at least a 256-color palette to display images. It will check your display mode to determine if the computer has the correct hardware and is in a correct mode. The Image View application will not start if your computer is not in the 256 or higher color mode.

2. Supports only interlaced JPEG files.

3. Not available to OS/2 users.

TROUBLESHOOTING

Use this section to solve hardware problems during or after installation. If your problem is not in the table or if you need help solving the problem call your IBM technical support representative.

INSTALLATION PROBLEMS

Use this section to solve installation problems.

SYMPTOM   Hardware conflict messages displayed

SOLUTION There is a conflict between your adapter settings and your operating system. Run CONFIG.EXE to analyze the conflicts, or refer to "Specifications" for the configuration defaults.

SYMPTOM   Internal read error during installation

SOLUTION Ensure you are not running the Norton Antivirus program while installing the Multimedia Modem Plus.

SYMPTOM   COM Port conflict detected but no other device is using the port

SOLUTION Your operating system is using the specified COM Port. See your computer operations manual for instructions on disabling the port. Disable the port from a configuration or BIOS setup program that can be accessed when your turn on or restart your computer.
If the conflicting port is a printer port and you do not have a printer attached to that port, accept the port setting by closing the configuration program and using the configuration with the failed COM Port test.

SYMPTOM   Sounds do not play or the system hangs

SOLUTION If your computer has built-in sound capability, a DMA-channel and an interrupt-request-line might be in use. These are not required when using the Multimedia Modem Plus. You can disable the DMA-channel and the interrupt-request-line by running the BIOS setup software shipped with your computer.

SYMPTOM   CD-ROM drive does not operate

SOLUTION   Run the CONFIG.EXE program to ensure that there are no base I/O address
conflicts, or refer to "Specifications" for information about the configuration
defaults. Ensure that the device line, DEVICE=C:\DSP2\SOLO\
MWDDSOLO.EXE appears before the CD-ROM device driver line in your
CONFIG.SYS file.
If the CD does not play with Windows applications, make sure a CD is in the CD-
ROM drive when you start Windows. If not, restart Windows with a CD in the
CD-ROM drive.

SYMPTOM   After software installation the disk drive does not work

SOLUTION   This is probably caused by a DMA conflict. Rerun the CONFIG.EXE or
CONFIGO.EXE program and choose a different DMA channel setting for the
Multimedia Modem Plus adapter.

OPERATION PROBLEMS

Use this section to solve operational problems.

PROBLEM   Need a test method for the modem function

CAUSES/SOLUTION Close all audio applications, initialize the modem, open your modem
application and do the following from the application terminal screen:

1. Type ATZ and press Enter. Your modem displays OK on the screen
within 5 seconds.
2. Type ATH1 and press Enter. The ATH1 command is the same as
taking the receiver off the hook, you will hear a dial tone through your
speakers.
3. Type ATH and press Enter. The ATH command is the same as
hanging up.

PROBLEM   Fax and modem operation is interrupted by incoming calls

CAUSES/SOLUTION If you have call-waiting, disable call-waiting before you make fax or
modem calls, or call your phone company and ask them to disconnect
your call-waiting service.

PROBLEM   Cannot connect to a DOS modem and fax application

CAUSES/SOLUTION If the CONFIG.EXE tests passed, then the modem and fax software IRQ setting assigned to the COM port might not match the the IRQ setting selected by the CONFIG.EXE program. Run your DOS modem and fax software and change the IRQ setting for the COM Port to match the IRQ setting listed in the configuration program.

PROBLEM   Can not receive or send a fax in a Windows application

CAUSES/SOLUTION If the CONFIG.EXE tests passed, the IRQ setting assigned to the COM port might not match the IRQ setting selected by the configuration program. Access the Control Panel, double-click the Ports icon and use the selected COM Port Advanced Settings to change the IRQ setting for the COM Port to match the IRQ setting selected by the configuration program.

HELPFUL HINTS

This section contains information about the IBM Multimedia Modem Plus that you will not find elsewhere in this book. You might find it helpful in some situations.

INSTALLATION

1. When you run the Multimedia Modem Plus configuration program for Windows, CONFIG.EXE, it is recommended that you run Automatic Setup to test the board. The CONFIGO.EXE configurator program for OS/2 does not support the Automatic Setup and Test or Test functions. If you have Windows installed on your system as well as OS/2, use CONFIG.EXE to test the configuration values. Record the configuration values that pass in Appendix A. Next, go back to OS/2, run CONFIGO.EXE, and use the Setup option to manually select the recorded configuration values. Exit CONFIGO and accept the Setup configuration values.

    If you do not have Windows installed on your system, you must choose your own configuration values. Check your system documentation and the documentation that came with any installed hardware to make sure your configuration choices do not conflict with values already used by the system. Also try typing "MSD" at the DOS command line. If the MSD.EXE is available on your system, it will provide you with valuable COM Port and IRQ information.

2. If you need another free IRQ and/or if you do not wish to use the external MIDI port on the Multimedia Modem Plus board, you can specify 0x0 as the MIDI I/O address in the Multimedia Modem Plus configuration program. The IRQ used by the external MIDI port will then be available for other devices. This feature may be useful if you have a limited number of unused IRQ's.

    The MIDI port is only used to connect to external MIDI devices. You will still be able to use MIDI on your system.

3. If you have a board or device on your computer which overlaps the I/O address range 0x278 to 0x27F the board may conflict with the standard Plug & Play address of 0xA79 defined in the Microsoft/Intel Plug & Play specification. If the device is a standard parallel port device configured for the base I/O range 0x278-0x27E, you should configure the adapter to a different I/O address range. Contact the board's manufacturer for information about how to change the adapter's default address.

4. If you have an IBM system with PS1TOOLS installed, check your AUTOEXEC.BAT for the following statement. If the statement is included in your AUTOEXEC.BAT, move it to the end of the file so that it is the last statement executed. All Mwave statements that were added to the AUTOEXEC.BAT during the Multimedia Modem Plus installation must be executed before this statement:

> C:\PS1TOOLS\PS1START.BAT

5. If you have a sound card in your system along with the Multimedia Modem Plus and are experiencing any difficulties with Multimedia Modem Plus functions, remove the additional sound card and use the Multimedia Modem Plus as your sound card. This will also free up an additional slot in your computer. Make sure to remove or comment out all statements in your CONFIG.SYS and AUTOEXEC.BAT that were added when the sound card was installed. (See your sound card's user manual for information about statements that are added during installation.)

6. If you have installed the Microsoft Mouse Driver and the Microsoft InPort Bus Mouse you may receive the following error message when the Multimedia Modem Plus board is installed and the system attempts to load the mouse driver during the boot sequence:

> Interrupt jumper missing

Use of the Microsoft InPort (BUS) mouse on IRQ 2 in Microsoft Windows causes the mouse to not function correctly in both standard and enhanced modes on AT class machines due to an interrupt conflict.

Try the following steps to resolve the problem:

a. Run the CONFIG.EXE program and choose Automatic Setup & Test to let the program automatically find a configuration which eliminates a possible conflict between the bus mouse and the Multimedia Modem Plus board.
b. If all tests pass, exit and save the new configuration, reboot your machine and see if the message goes away.
c. If the problem persists, try changing the bus mouse IRQ jumper to 5 (or 3 or 4) to eliminate the conflict. Then repeat steps (a) and (b) to reconfigure your Multimedia Modem Plus board and reboot your system.

IRQ 2 is unavailable to add-in cards on IBM PC/AT bus class computers due to the fact that IRQ 2 cascades to IRQ 9 on the second Intel 8259 PIC chip.

7. Manually setting the DSP DMA and Sound Blaster DMA to the same setting in CONFIG or CONFIGO will cause a system hang.

8. DOS and Windows Users:

- If Automatic Setup & Test reports that all tests passed except for COM Port and COM IRQ test (where all values failed) then try the following:

  - Disable the external MIDI port as in item 3 above. Specify 0x0 as the MIDI Base I/O address.
  - Re-run the Automatic Setup & Test.
  - If all tests pass then you had an insufficient number of unused or free IRQ's. Your options are to either continue to use your Multimedia Modem Plus board with external MIDI disabled or to free up an IRQ used by another device in your system by disabling an unused serial COM port or parallel port. Unused serial or parallel ports can be disabled by using either BIOS setup (for built-in serial and parallel ports) or disabling a port on a communication or multi-function card.

- If you have a CD-ROM drive installed on your system, have installed the Multimedia Modem Plus, and are now getting error messages when you power up your computer saying that the CD-ROM device is not found, view the CONFIG.SYS and look for the location of the following statement:

  DEVICE=C:\DSP2\SOLO\MWDDSOLO.EXE....

  Make sure this statement appears above the CD-ROM driver statements in CONFIG.SYS. If it does not, use an editor to move the line above the CD-ROM driver statements. After editing, reboot your system.

  If the system still does not recognize your CD-ROM drive, run CONFIG and make sure the CD-ROM settings are correct. (See the "Configuring Your Multimedia Modem Plus for Windows" for more information. THE CD-ROM SETTINGS ARE NOT AUTOMATICALLY SELECTED DURING AUTOMATIC CONFIGURATION AND TEST; THEY MUST BE SET BY THE USER USING THE SETUP OPTION.

- If CONFIG.EXE appears to hang your system during testing of the DSP DMA channel or the SB DMA channel perform the following steps:

  - Reboot your system and run the CONFIG.EXE program again.
  - Choose the Automatic Setup and Test option
  - During this second run, the CONFIG program will avoid choosing a DMA channel which conflicts with another device on your system. This DMA conflict may have caused the system to hang the previous time the CONFIG.EXE program was run.

- If Windows hangs during initialization, the DMA channel set in CONFIG is incorrect. To correct, reboot the machine, but do not restart Windows.

From DOS, change to the DSP2\SOLO subdirectory and run CONFIG. Run Automatic Setup and Test; the configuration program will correct the DMA channel and select one that does not cause a conflict in your system.

- If you receive the message "Error loading OCDSP.OP file" when running the CONFIG.EXE program, change your working directory to the directory where CONFIG.EXE is found (usually C:\DSP2\SOLO) before running the CONFIG.EXE program. The CONFIG.EXE program expects to find the OCDSP.OP file in the current working directory..

9. OS/2 Users:

   If, after installing the OS/2 diskettes, running CONFIGO, shutting down, and rebooting your machine, you receive error messages on your screen, you may have a configuration conflict. Run CONFIGO again and choose different settings that do not conflict with the other hardware settings in your system. See your system documentation for details. If you have a dual boot machine and have run CONFIG in Windows successfully, make sure the settings you chose in CONFIGO match the ones you chose in CONFIG.

   - OS/2 Users: If you are using OS/2, do not open the Mwave modem in OS/2 and WIN-OS/2 at the same time. It will hang the system if you open both of them.

FAXWORKS FOR OS/2 USERS

1. If you install FaxWorks for OS/2 on your system after you have installed the Multimedia Modem Plus, make sure to add the proper COM Port information to your CONFIG.SYS, as documented in "Configuring your Multimedia Modem Plus for OS/2 WARP."
   Note: The comments above the FaxWorks statements tell you not to modify them. Modify the COM Port statement as documented anyway!

2. If you have FaxWorks for OS/2 installed in your computer, modify your CONFIG.SYS file using a text editor to add the information in parentheses to the following line in the CONFIG.SYS file:

   DEVICE=path....Fmd.sys (comport, comport address, comport irq)

   Where path is the path to the FaxWorks subdirectory, comport is the communication port, comport address is the communication port address, and comport irq is the communication port interrupt request.

   An example of an edited line is:

   DEVICE=path....Fmd.sys(3,3E8,5)

   Where path is the communications application directory path.

   The COM Port information is part of the information you recorded when you configured your system. The information can also be copied from the following line in CONFIG.SYS:

   DEVICE=path....COM.SYS(3,3E8,5)

   Record the configuration information. You will need this information if you plan to install Multimedia Modem Plus under OS/2 Warp and Windows in the same computer.

AUDIO APPLICATIONS

1. If a loud, squealing noise comes from the speakers, there is audio feedback coupling between the microphone and speakers. Reorient the microphone so that it does not point directly toward the speakers. You can also reduce the volume level of the speakers.

2. If you experience breakup of your audio signal, you may have a poorly behaved memory cache controller. The cache controller my be grabbing the computer's memory bus and preventing other memory controllers, such as the Multimedia Modem Plus DMA controller, from gaining access to the bus for long periods of time. When this situation occurs with the Multimedia Modem Plus, audio samples are not available to the DSP at the time they are needed.

   To correct this problem, run CONFIG or CONFIGO, select Setup, and change the DMA Channel to 0. Check for conflicts by running Test with CONFIG, or by checking your system for other devices that use DMA 0, before accepting the new setting.

SPECIFICATIONS

The Multimedia Modem Plus adapter is an audio and telecommunications adapter for ISA and EISA 386, 486, and Pentium-based personal computers. The following are the hardware and software specifications for the Multimedia Modem Plus.

CARD FEATURES

- 16-bit busmaster ISA host interface
- Mwave-based, MDSP2780, 25-MIPS, fixed-point DSP
- One 32K x 24 SRAM array for data memory
- One 32K x 16 SRAM array for program memory
- 16-bit stereo 4215 Crystal Codec
- Wide-band AIC and Analog DAA for telephony
- UART (16550) emulation for modem and fax operation
- Jumperless installation manager
- Three-way discrimination between incoming fax, voice, and data calls

INTERNAL I/O CONNECTIONS

- Panasonic CD-ROM interface connector (40 pin)
- Panasonic CD audio connector (3 pin)
- Sony CD-ROM interface connector (34 pin)
- Sony CD audio connector (MPC-2, 4 pin)
- Wake-Up on Ring connector

SUPPORTED INTERNAL CD-ROM DRIVES

- Panasonic CR-562-B, CR-563-B
- Sony CDU-31A, CDU-33A
- Funai NSCD-2X-S
- Teac CD-055A Quad Speed

EXTERNAL I/O CONNECTIONS

- 3.5 mm jack for monaural microphone
- 3.5 mm jack for stereo line out/headphones, minimum 600 ohm load
- 3.5 mm jack for stereo line in
- Telephone/line RJ12 socket
- Joystick/MIDI port

POWER REQUIREMENTS

- 1.5 A at +5 V
- 110 mA at +12 V
- 110 mA at -12 V
- 700 mA at -5 V

FAX MODEM

- 14 400 bps (V.17) fax transfer, with support for 9600, 7200, 4800, 2400, and 300 bps transfer rates
- Group 3 fax operation
- Class 2 fax compatibility

DATA MODEM

- 28 800 bps (V.34) data modem
- 14 400 bps (V.32bis) data modem
- DSVD support when connected to another IBM Mwave modem
- Hayes AT Command Set compatibility
- V.42 bis, MNP 5 data compression
- V.42, MNP 1-4 error correction

TELEPHONY SUBSYSTEM

- Transmit/receive rate: 28 800 bps
- Bandwidth: 300 Hz to 4 kHz
- DC input impedance: 150 ohm (max)
- AC input impedance: 700 ohm (max)
- DC input voltage 0.2 V rms (ext)
- Ring frequency range: 15.8 kHz (min) to 68 KHz (max)
- Transmit THD: 76 dBm (max)
- Receive THD: 72 dBm (max)
- Transmit/Receive Noise: 85 dBm (max)
- Output telecom signal: 0.1 V rms

AUDIO FEATURES

- CD-quality, 16-bit stereo sound
- Support for Sound Blaster and Sound Blaster Pro
- General MIDI compliant
- 32-voice, 128-instrument, wavetable synthesis
- Multiple source audio mixing (line-level in, CD analog in)
- Mwave Audio Mixer with volume control, peak meter, base and treble control Special effects include QSOUND, Reverb, and Chorus
- Selectable digital stereo sampling rates up to 44 100 Hz
- Dynamic range: 16-bit stereo
- S/ (N+D) Ratio (LL I/O): 80 dB
- S/ (N+D) Ratio (Mic in): > 48 dB
- Mic-In signal level: 0.2 V rms (ext)
- Mic-In input impedance: 2 kohm (ext)
- Output level (max at 32 ohm load): 1/32 Watt (ext)
- Output level: 1 V rms (ext)

IBM MULTIMEDIA MODEM PLUS SETTINGS TABLE

- Enter current settings if different from default settings

RECOMENDED SETTINGS FOR THE AMBRA SERIES

DSP	Base I/O	0xCE30
DSP	DMA	7
DSP	IRQ	10
SB	Base I/O	0x220
SB	DMA	1
SB	IRQ	7
MIDI	Base I/O	0x330
MIDI	IRQ	9
COM	Port	3
COM	IRQ	5
CD-ROM	Type	None
CD-ROM	Base I/O	0x0
Joystick		Enabled

GLOSSARY OF TERMS AND ABBREVIATIONS

ADPCM. Adaptive differential pulse code modulation.

ASYNCHRONOUS. Pertaining to two or more processes that do not depend upon the occurrence of a specific event such as a common timing signal.

BPS. Bits per second. In serial transmission, the instantaneous bit speed with which a device or channel transmits a character.

CODEC. Pertaining to adapters that compress and decompress video files. The letters "CODEC" represent "compression/decompression"; in the past, they represented "coder/decoder."

COM. Communication port.

COMPRESSION. The process of eliminating gaps, empty fields, redundancies, and unnecessary data to shorten the length of records or blocks.

DAA. Data access arrangement.

DSP. Digital signal processor.

DMA. Direct memory access.

DSVD. Digital simultaneous voice over data.

DUPLEX. Pertaining to communication in which data can be sent and received at the same time. Synonymous with full duplex.

FAX. (1) Hard copy received from a facsimile machine. (T)   Synonymous with telecopy. (2) To transmit an image, using a telephone system and facsimile machines. (T)

ISA. Industry standard architecture.

JPEG. Joint Photographic Experts Group.

MCI. Media control interface.

MIDI. Musical Instrument Digital Interface.

MIDI FILE. An audio file that has a MIDI format.

MIPS. Millions of instructions per second.

MNP. Microcom networking protocol.

MPEG. Moving Pictures Experts Group.

SYNCHRONOUS. Pertaining to two or more processes that depend upon the occurrence of specific events such as common timing signals.

TAPI. Telephony application programming interface.

WIN-OS/2. OS/2 3.x support for programs requiring Microsoft Windows.

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