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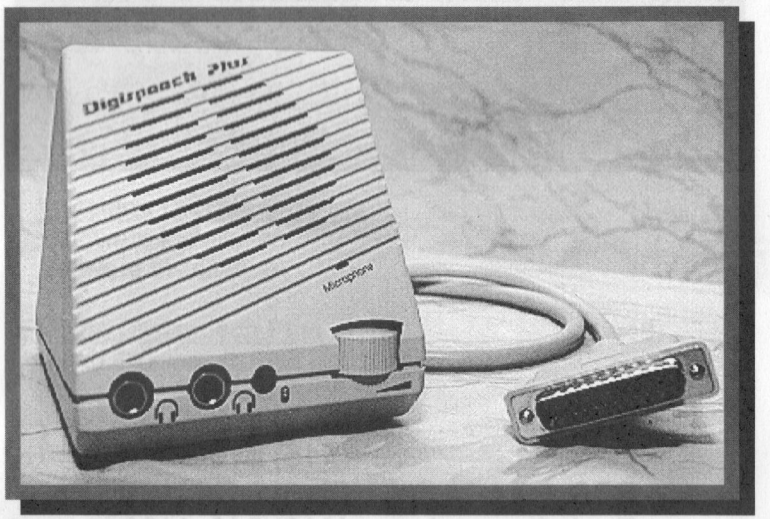
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DSP™ SOLUTIONS



A GUIDE TO USING DIGISPEECH PLUS

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Congratulations!

...and prepare to be dazzled! Your purchase of Digispeech Plus has brought you into the world of computerized sound, and from now on personal computing will never be the same. Depending on the software programs you use, you will hear anything from a spaceship blasting off to a human voice reciting poetry to the peaceful sound of falling rain, and you will receive all these dazzling sound capabilities from a product designed to give years of trouble-free service.

Digispeech Plus is the first external sound peripheral to deliver 16-bit CD quality music with stereo audio capabilities. It is sturdy but lightweight, and is designed for easy connection to your computer's parallel port (an optional pass-through adapter is available that allows both Digispeech Plus and a printer to use the same port).

That's not all. With Digispeech Plus you can record directly from a CD or tape player, as well as connect to external stereo speakers or headphones for hi-fidelity sound. Digispeech Plus works great with both Windows and DOS-based applications, and it is compatible with most applications written for Sound Blaster™.

But enough said: let's get going! In the following pages you will learn how to install and use Digispeech Plus. Thanks for purchasing a DSP Solutions product -- and, once again, welcome to the world of computerized sound.

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Meet Digispeech Plus

A BRIEF TOUR

Everything you need to enter the world of computerized sound is contained in the Digispeech Plus package:

- The Digispeech Plus sound unit
- 9-volt AC/DC adapter
- 2 Digispeech Plus disks
- This guidebook
- Registration card

Before continuing to read this guidebook, please take the time to fill out the enclosed registration card. When you send in your registration, you are authorized to obtain technical support and free software upgrades as well as receiving announcements of new products.

Digispeech Plus is a complete, external sound solution for IBM compatible computers. Unlike other computer sound cards that must be installed inside your computer, the Digispeech Plus sound card is built right into the sound unit (Figure A).

Installation is a snap. When you attach Digispeech Plus to the parallel port on the back of your computer (a very simple job, as you will see in the section entitled "Hardware Installation"), the sound unit is ready to go. All that is left to do is to load the Digispeech Plus software (another easy job). Then, your compatible computer applications will be accompanied by sound.

Though easy to use, Digispeech Plus is based on highly advanced digital signal processing technology. It supports stereo playback of 16-bit digitized audio, 16-bit recording, Sound Blaster digitized, voice and Sound Blaster/AdLib™ compatible music synthesis, as well as continuing to support all the features of the Digispeech 201A. Digispeech Plus also provides real-time compression and decompression of industry-standard ADPCM sound formats.

Figures A and B illustrate your Digispeech Plus and its various parts:

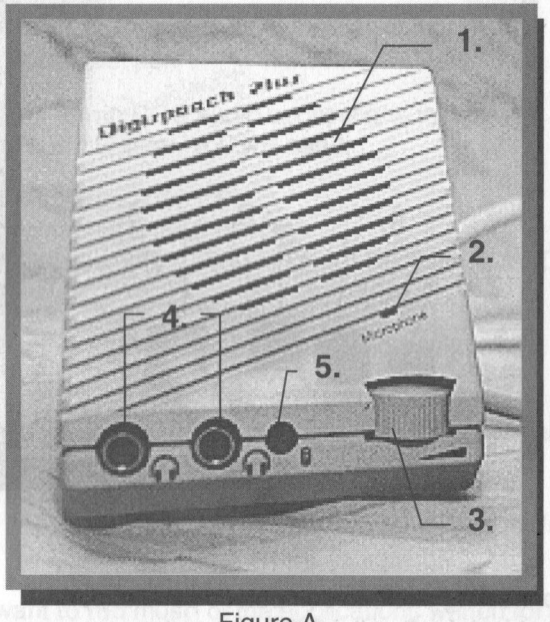


Figure A

Figure A
1. Built-in speaker
2. Built-in omni-directional microphone
3. Volume control knob
4. Stereo/mono headphone jacks (Line-out feature)
5. External microphone input jack

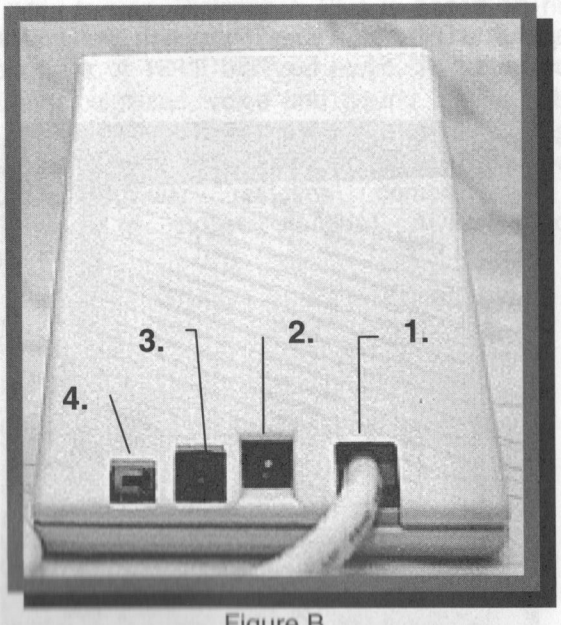


Figure B

Figure B
1. Connecting cable to computer's parallel port
2. Input jack for 9-volt AC/DC connector
3. Line-in for mixing CD, tape player, or other audio source
4. Mono/stereo switch

In addition, you may also purchase the optional Digispeech Plus Printer Pass-Through Adapter which allows you to attach both your printer and Digispeech Plus without changing cables.

◆◆◆

WHAT YOU NEED TO USE DIGISPEECH PLUS

- MS-DOS™ or PC-DOS version 3.3 or higher
- A parallel port

If you want to run DOS audio applications that do not require Sound Blaster, you will need:

- Minimum 8088 CPU
- Minimum 640KB of RAM
- Approximately 1800 KB Hard Disk space for DOS install

If you want to run Windows-based audio applications, you will need:

- Microsoft Windows version 3.1 or higher running in enhanced mode
- 80386 or higher CPU
- Approximately 3500 KB Hard Disk space for full DOS and Windows install

If you want to run most[1] of the applications written for DOS Sound Blaster applications, you will need:

- Microsoft Windows in enhanced mode or Digispeech Plus BMaster program for DOS.
- 80386 or higher CPU
- Minimum 2MB of RAM

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[1] Digispeech Plus will not work with Sound Blaster applications written using DOS extenders.

WORKING WITH WINDOWS AND DOS PROGRAMS

◆◆◆◆**Windows Compatibility** Under Windows, Digispeech Plus works with applications displaying the Multimedia PC (MPC) symbol. A Windows program lacking this symbol may not work with Digispeech Plus.

◆◆◆◆**DOS Compatibility** Digispeech Plus works with:

⇒ Any program using DSP Solutions audio drivers.
⇒ Most DOS programs supporting Sound Blaster.
⇒ A large number of DOS educational and game programs.

Check the manuals that come with individual programs to see if they support DSP Solutions products. If you are thinking about buying a program, but cannot determine its compatibility with Digispeech Plus, call DSP Solutions Technical Support for a current list of supported applications.

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Installing Digispeech Plus on Your Computer

HARDWARE INSTALLATION

Installing Digispeech Plus is fast and easy. First, locate the parallel port on the back of your computer. The parallel port contains 25 holes in two rows (12 and 13). If you have a printer, it is probably plugged into this port; temporarily disconnect the printer. You may want to purchase the optional Digispeech Plus Printer Pass-Through Adapter, which allows you to work with Digispeech Plus and your printer without changing cables.

Now look at the end of the Digispeech Plus connecting cable. You will see that it contains 25 pins arranged in a 12/13 configuration fitting the 25 holes of the parallel port. (If you purchased the Digispeech Plus Printer Pass-Through Adapter, refer to its instructions.)

Be sure that the port holes and connector pins line up. Gently slide the connector into place -- being careful not to force it and bend the pins -- until it is firmly positioned. Tighten the two fastening screws.

If you have installed the Digispeech Plus Printer Pass-Through Adapter, you can now use the printer any time Digispeech Plus is not actually playing.

Finally, connect the AC to the input jack shown in Figure B, and plug the other end into an electrical outlet.

That is all there is to it! Once you install the software, described next, you will be ready to use Digispeech Plus.

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SOFTWARE INSTALLATION

The way in which you install Digispeech Plus software depends on whether you are working with DOS or Windows. If you install from DOS you can only install the DOS drivers and utilities. If you use Windows you can install both the Windows drivers and the DOS drivers (but you can choose to install only the Windows drivers if you want to).

Tip Installation instructions and additional software drivers[2] for selected IBM educational software products that work with Digispeech Plus are available from DSP Solutions. Call Technical Support for more information.

◆◆◆◆DOS Installation Procedure If you want to install only the DOS drivers:

1. Place the disk labeled Digispeech Plus #1 in drive A (or B) of your computer.
2. Type **A:INSTALL** (or **B:INSTALL**).

[2] Software drivers are available for the following programs: Writing to Read, Writing to Read 2000, Writing to Write, Measurement Time & Money, Exploring Math With Manipulatives, and others available from IBM, Jostens, New Century, and CCC.

3. Press **Enter**. The install program displays a prompt showing the drive and directory name under which it will store the driver files: **C:\DIGIPLUS.**
   ⇒ If you want to install Digispeech Plus in a different directory and/or drive, type in the new path and press **Enter** or click **Continue**.
   ⇒ If you want to proceed without making changes, simply press **Enter** or click **Continue**.

   The Digispeech Plus installation begins. You will see file names being listed as they are decompressed from the disk and copied into the new directory. A bar graph displays the installation's progress. You can cancel the procedure at any time by pressing **Escape** or clicking on **Cancel**.
4. When all the files on Disk #1 have been decompressed, you will be prompted to remove the first disk and insert Disk #2. Do so, and press **Enter** or click **OK**. Once again, you will see a bar graph detailing the installation's progress.
5. When all files have been installed, the Audio Device Setup screen appears. The software supplied with the unit should already be configured for Digispeech Plus. If not, use the up/down arrow keys to select: (3) Digispeech Plus, and then press **Enter**.
6. After a few seconds you will hear a chime. A screen informs you that the installation has been successfully completed, and prompts you to press the **P** key to hear a short musical selection. If you do not hear the music, check to see that the volume is turned up on your sound unit. When you are through listening to the music, press **Escape**.

7. A "Read Me!" file appears. It contains material not available when the manual was printed. Scroll through the file using the arrow keys. When you reach the end, press **Enter**. You are back at the DOS prompt, ready to use Digispeech Plus (see "Using Digispeech Hardware with Software Applications").

◆◆◆◆Windows Installation Procedure This procedure installs both Windows and DOS software. If you want to install Windows software only, you can make that choice in Step 5, below.

1. Start Windows. Place the disk labeled Digispeech Plus #1 in drive A or drive B of your computer.

2. Select **Run** from the file menu of the Program Manager or File Manager. If you want a program manager group created, Program Manager must be running (any other shell might produce unpredictable results).

3. In the text box labeled "Command Line," type `A:INSTALL` (or `B:INSTALL`, if you are using drive B). Press **Enter** or click **OK**.

4. The DSP Solutions logo appears, and then a prompt displays the drive and directory name -- `C:\DIGIPLUS` -- under which the driver files will be stored. If you want to change the drive and/or directory name, type in a different name or path now. If you want to proceed with no changes, simply press **Enter**.

5. You are asked to choose between a Custom Install or Full Install.

   ⇒ If you choose Full, all Digispeech Plus DOS and Windows drivers and utilities will be installed. This is the recommended choice. If you do, proceed to Step 6.

   ⇒ If you choose Custom, perhaps because you have limited disk space and therefore want to install DOS or Windows software only, a screen prompts you to select the desired software. Do so.

6. The Digispeech Plus installation begins. You will see file names listed as they are decompressed from the disk and copied into the new directory. A bar graph tracks the installation's progress.

7. When all files from Disk #1 have been installed, you will be prompted to insert Disk #2. Do so. Click **OK**.

8. Again, file names appear and disappear while a bar graph tracks the installation's progress.

9. When the installation is complete, you will be prompted to add a set of icons to a Program Manager group entitled DSP Solutions. If you want to do so, click **Create**. If you prefer, you can place the icons in a different group. Simply type in the name of a new or existing group.

10. When all files have been installed, the Audio Device Setup screen appears. The software supplied with the unit should already be configured for Digispeech Plus. If not, use the up/down arrow keys to select Digispeech Plus, and then press **Enter**.

11. Choose a setup mode and click the Setup button to proceed. Under most circumstances, you will want to use the Automatic Setup (manual setup is designed for advanced users who want to specify interrupts, I/O ports, etc.) Click **Setup** and then **OK**.
12. A new dialog box informs you that the audio device has been detected and that the Windows Audio Device Driver Setup has been successfully completed. Click **OK** or press **Enter**.
13. A "Read Me!" file appears, it contains material not available when the manual was printed. Scroll through the file with the arrow keys. When you reach the end, click **Continue**.
14. A prompt advises you that, to fully complete installation, you must leave Windows and restart. If any applications are open, close them now; be especially sure that the DOS box or DOS programs are closed. The second install disk must be left in the drive. Click on **OK**. The program automatically exits and then restarts Windows.

Tip If you change your computer's clock speed -- for example, by using the Turbo button -- you must rerun the DGSETUP program in DOS prior to running a DOS audio driver. Also, rerun the DSP Solutions sound driver setup in the Drivers Section of the Windows Control Panel if you are running under Windows.

◆◆◆◆**Windows Uninstall Program** This program is included on Installation Disk #1. This procedure removes all Digispeech Plus software and drivers.

1. Go to the Control Panel and select **Drivers**.
2. Select **DSP Solution Parallel Audio**.
3. Click **Remove**.
4. Click **Restart Windows**.
5. Insert Disk #1 in Drive A or B.
6. Select **Run** from the Program Manager, and then type `A:UNINSTAL`. Follow instructions on the screen. The uninstall program operates similarly to the install program.

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Using Digispeech Plus

USING DIGISPEECH PLUS HARDWARE WITH SOFTWARE APPLICATIONS

Once you have connected the Digispeech Plus hardware to your computer's parallel port and installed the DOS and/or Windows drivers, it is ready for use with compatible software applications. Operation is simple. As long as the AC adapter is plugged in, your Digispeech Plus will always be turned "on," ready to go, when you start your computer.

Most DOS software applications you use will ask you to name your system's sound card or will provide a list of sound cards supported by that particular application. If Digispeech Plus is not one of the options given, select Sound Blaster -- do not select Sound Blaster Pro™. You must run BMaster before installing the application (see "Using Sound Blaster Compatible Programs" below). After selecting Sound Blaster, most setup programs will ask for its audio parameters. Use Sound Blaster's default settings of I/O Port Address: 220h, IRQ: 7, DMA: 1.

◆◆◆◆**Running DSP Solutions Compatible Programs from DOS** If you are running a program under DOS, be sure that the appropriate DSP Solutions audio driver is loaded before starting the program.

◆◆◆◆**Running Sound Blaster Compatible Programs from DOS** Digispeech Plus uses a program called Bmaster which emulates Sound Blaster. This makes it possible to use Sound Blaster compatible software applications with your sound unit.

Before installing or running your Sound Blaster compatible application, be sure that the BMaster program is loaded. To run BMaster: type **BMASTER** at the DOS prompt. You are now ready to load and run your Sound Blaster compatible application. When you have finished using BMaster, unload it by typing **BMASTER/U** at the DOS prompt. To obtain a complete list of BMaster commands, type **BMASTER/?** at the DOS prompt.

◆◆◆◆**Running Programs from Windows** If you are running a program under Windows (or DOS in Windows), BMaster does not need to be loaded. Just click on the program icon (or use Program Manager/File/Run) to start the application as you normally would.

◆◆◆

USING HEADPHONES

When you plug headphones into the Digispeech Plus headphone jacks (Figure A), the built-in speaker will be automatically disabled and sound will play only through the headphones. Two headphone jacks have been provided so that two people can use headphones simultaneously. For best results, the headphones should be the same type.

A headset control switch, located on the back (Figure B), toggles between monaural and stereophonic sound. It should ordinarily be set to stereo. Standard stereo/mono headphones -- those with 600 ohm impedance -- work best with Digispeech Plus. You may need a 1/4" stereo adapter plug (not included).

Tip The headphone jack may also be used as a line-out jack for external stereo speakers.

◆◆◆

USING MICROPHONES

Digispeech Plus contains a built-in microphone which can record voice, music, and sounds. This high-quality internal microphone will satisfy most needs. However, if you prefer to use an external microphone you may do so by connecting a standard dynamic or an electret microphone to the input jack (Figure A). Standard dynamic or electret microphones are available at most audio stores.

◆◆◆

RECORDING FROM CD OR TAPE PLAYERS

To record directly from a CD or tape player, simply connect it to the line-in jack shown in Figure B. Use the CD/tape player just as you would ordinarily. You may need to use an 1/8" mini-jack cable (not included).

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Digispeech Plus DOS Utilities

This section discusses the Digispeech Plus DOS utilities, which provide complete support for playback and record facilities, as well as text-to-speech capabilities. Using these programs, for instance, you could create a batch file that plays the voice of your favorite Disney character each time you turn on your computer. Text-to-speech capabilities allow Digispeech Plus to read text aloud. For example, your computer can now read a long list of numbers aloud, making it easy to double-check that the information has been typed in correctly.

DIGIPLAY

The DigiPlay program provides complete playback facilities for DOS users. DigiPlay recognizes and plays a wide variety of standard sound file formats (including the Windows .WAV file format). The following command sequence summarizes use of the DigiPlay program (with the text-to-speech engine):

PDIGI	Load the audio driver
LOAD	Load the speech generator (optional)
DIGIPLAY <switches><filename>	Specify playback operation/play files
UNLOAD	Unload the speech generator (if used)
PDIGI /U	Unload the audio driver

◆◆◆◆Loading PDIGI Driver To play digitized audio or synthesized music, DigiPlay requires the PDIGI driver. At the DOS prompt, type one of the following commands:

```
PDIGI        To play audio
PDIGI /M     To play synthesized music and audio
```

To use the text-to-speech option (see below), DigiPlay requires the First Byte Text-to-Speech Engine and the First Byte Digispeech Audio driver to be loaded. To load them, at the DOS prompt, type:

```
LOAD
```

You can now use the DigiPlay program (see "Running DigiPlay" below). When you are through working with DigiPlay, you can free up RAM space by unloading the drivers. To do so, at the DOS prompt type:

```
PDIGI /U
UNLOAD
```

◆◆◆◆Running DigiPlay Start DigiPlay by typing a command in the following form at the DOS prompt:

```
DIGIPLAY <switches><filename1filename2....>
```

DigiPlay's two categories of command parameters are:

<switches> (optional commands to control the operation) You can obtain a listing of all switches by typing **DIGIPLAY/?** at the DOS prompt.

<filenames> (names of sound files that you want DigiPlay to play) One or more files will be played in the order you specify. Wildcards (* and ?) are allowed.

For example, to play the digitized audio file (included in the DIGIPLUS directory) named BREEZE.WAV, type:

```
PDIGI
DIGIPLAY BREEZE.WAV
```

To make the system greet you with spoken words, type:

```
LOAD
DIGIPLAY  /T:"GOOD MORNING"
```

Tip The PDIGI driver and the First Byte Digispeech Audio driver need only be loaded once. It will continue to be active until you reboot your computer or it is unloaded.

To make the system read a file and display the file as it is spoken, type:

```
LOAD
DIGIPLAY  /FTD  README.TXT
```

To make the system play some music and read a file to you, type:

```
PDIGI
LOAD
DIGIPLAY/T BREEZE.WAV README.TXT
```

●●●OR●●●

```
DIGIPLAY  /T  *.WAV  *.TXT
```

●●●OR●●●

```
DIGIPLAY *.*
```

Tip DigiPlay will skip all files that it does not recognize, such as an .EXE file.

◆◆◆

DIGIREC

The DigiRec program provides complete record facilities for DOS users. DigiRec records sound files in a number of different data compression formats and sampling rates. The following command sequence summarizes use of the DigiRec program:

```
PDIGI                          Load the audio driver
DIGIREC <switches><filename>   Specify playback/
                               play files
PDIGI /U                       Unload the audio driver
```

◆◆◆◆Loading PDIGI Driver DigiRec requires the PDIGI driver. At the DOS prompt, type:

```
PDIGI
```

DigiRec is now ready to be used. When you have finished working with DigiRec, you can free up RAM space by unloading the driver. To do so, at the DOS prompt type:

```
PDIGI /U
```

◆◆◆◆Running DigiRec Once the driver has been loaded, to start DigiRec, type:

```
DIGIREC <switches> <filename>
```

DigiRec's two categories of command parameters are:

<switches> (optional commands to control the operation) You can obtain a listing of all switches by typing **DIGIREC/?** at the DOS prompt.

<filename> (name of a sound file that you want DigiRec to record) No wildcards are allowed.

For example, to record a sound clip with the file name TEST.WAV using the default settings: 5 second length, 8KHz, Linear PCM Data Format, 8 bits, type:

```
PDIGI
DIGIREC  TEST.WAV
```

Tip The PDIGI driver needs only to be loaded once. It will be active until the computer is rebooted or PDIGI is unloaded.

To record a 10-second sound bite at the higher sampling rate, type:

```
PDIGI
DIGIREC  /T10  /R11025  TEST.WAV
```

◆◆◆

DOSTALK

For DOS systems, text-to-speech capabilities are provided through two utilities: DOSTALK, a text screen reader; and DOSREADER, an ASCII text file reader. DOSTALK is perfect for proofing blocks of data entered in a DOS spreadsheet such as LOTUS 1-2-3 (if they are non-graphics screens). The following command sequence summarizes the use of the DOSTALK program:

LOAD	Load the speech generator
DOSTALK	Run DOSTALK program
(open text-mode application)	
Alt-S	Activates DOSTALK menu
(exit application)	
DOSTALK /U	Unload DOSTALK program
UNLOAD	Unload speech generator

◆◆◆◆**Loading DOSTALK** DOSTALK requires both the First Byte Text-to-Speech Engine and the First Byte Digispeech Plus Audio Driver to be loaded. To load them, at the DOS prompt, type the batch file command to load these speech drivers:

```
LOAD
```

Tip The PDIGI driver is not required.

You are now ready to use DOSTALK. When you are through working with DOSTALK, you can free up RAM space by running the batch file to unload the speech drivers. To do so, at the DOS prompt type:

```
UNLOAD
```


◆◆◆◆**Running DOSTALK** Let's assume that you want to double-check numbers in a spreadsheet. At the DOS prompt, type:

```
DOSTALK
```

Then open the desired application and display the appropriate data file on the screen. The spreadsheet must be operating in text display mode (not graphics mode). Then press:

Alt-S

A special menu pops up with selections for commands and options. Select the option you want; the menu is replaced by a single reverse video cursor. Position the cursor at the top left character of the column or row to be proofed and press **Enter**. Move the cursor to the bottom right character of the column or row to be proofed and press **Enter** again, marking the text to be read aloud (the selected text is highlighted in reverse video).

When you press **Enter** again, the text will be read aloud. DOSTALK quits by itself after all selected text has been read. Press **Escape** at any time to quit. Upon quitting the primary application, be sure to unload DOSTALK and the speech generator by typing:

```
UNLOAD
DOSTALK /U
```

◆◆◆

DOSREADER

DOSREADER is an ASCII text file reader, able to read an entire ASCII text file aloud. The following commands are the two options for starting the DOSREADER program:

DR	Starts DOSREADER with no file loaded
DR filename	Starts DOSREADER and loads "**filename**"

Tip The PDIGI and the First Byte Digispeech Plus Audio Drivers are not required.

◆◆◆◆**Running DOSREADER** Start DOSREADER by typing a command of the following form at the DOS prompt: **DR filename**. For instance, there is a text file called **SUPER.TXT** included with this software, type **DR SUPER.TXT** to open this short poem. Filename -- the name of the file you want DOSREADER to read aloud -- is the only parameter of the DOSREADER command. No wildcards are allowed. After you press **Enter**, the specified file is displayed as a full screen of text.

Select the text to be read aloud. To do so, if you have a mouse, you may mark the text by holding down on the left mouse button and dragging the cursor to mark the text. If not, you may use the keypad arrows to position the cursor in front of the first character to be read aloud and press **Shift** to begin marking. While holding **Shift** down, position the cursor after the last character to be read aloud. Release **Shift**. The selected text is highlighted in reverse video. To hear the selected text, press or click on **Enter.** If no text was selected, speech begins at the current cursor position continuing to the end of the file.

The **Options** menu allows you to manipulate DOSREADER's voice. Feel free to experiment with the pitch, volume and speed controls to see how they affect the vocal quality. Experiment by creating your own text files. When you are finished, exit by pressing or clicking on **Alt-X**.

◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆

Digispeech Plus Windows Utilities

This section discusses the Digispeech Plus Windows Utilities: DSPanel, WinReader, and Sound Station. The DSPanel provides the user with direct control over DSP Solutions Audio Driver functions. WinReader allows your computer to read text files aloud, with variable voice options such as speed and pitch. Finally, the Sound Station can be used to record and play back voice, music, and other sounds.

DSPANEL

The DSP Solutions Audio Panel gives you direct control over certain audio functions, including sound level playback and record levels, when a specific application does not provide the desired function. Start DSPanel by double-clicking on its icon or by selecting **Program Manager/File/Run** then type `C:/DIGIPLUS/DSPANEL.`

The Audio Control panel appears. To change sound level playback of either digitized or synthesized audio files, click and hold down the left mouse button while on the WAVE/Synth Volume dial. Then drag the pointer in a clockwise direction to increase volume, or counter-clockwise to decrease volume.

To test the volume level, click **Test** (when you do, it automatically becomes a **Stop** button). A continuous sound loop clip will play. Click **Stop** when you want the music to stop playing.

Tip When using the volume control dial, only the files indicated by the volume control title will be affected. The volume-control dial controls different files depending on the **Mix WAVE/Synth** box. If left unchecked, it is labeled **WAVE**, which controls only the digitized audio files. Or, if checked, it is labeled **Synth**, which controls only the synthesized audio files.

To change recording levels for digitized audio files, click and hold the left mouse button while on the REC Level dial pointer. Then use another application such as DSP Sound Station to record.

You can change the default Windows Startup settings for the record and playback levels at any time by going to the Windows Control Panel and selecting **Drivers**. Then choose **DSP Solutions Audio Driver** and click **Setup**. Click the **Options** button to increase or decrease the default volume levels. For a full description of available options, click on the **Help** button.

The following options are also available:

⇒ **AGC On**: Automatically adjusts recording gain based on surrounding noise level.

⇒ **Mix Wave/Synth**: Allows both digitized and synthesized audio files to be played simultaneously.

Tip When you are working with DSPanel you can obtain a full description of commands by clicking **Help**.

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WINREADER

WinReader is a text editor with text-to-speech reading capabilities that allow any portion of an open text file to be read aloud. For example, your computer can now read back to you a long list of numbers, making it easy to double-check that information has been typed in correctly.

◆◆◆◆**Running WinReader** Start WinReader by double-clicking on its icon or by selecting Program Manager/File, choosing **Run**, and typing **WINREAD**.

A sample file has been created for your use. To access it, choose **File/Open**, and then select the file named **SUPER.TXT**. A four-line poem appears on the screen. Click on the yellow loudspeaker at the top of the screen. In a few seconds, WinReader reads the poem aloud.

Here is another experiment: choose **File/New**, and then type in text of your own. Type anything -- be as creative as you want. When you are through, click on the yellow speaker and WinReader reads your text aloud. If you want only a portion of the text read aloud, highlight it as you would in other Windows applications: click the left mouse button and drag the mouse across the words you want read, highlighting them. Then click on the yellow speaker. Only the highlighted words are read.

Feel free to experiment. For instance, choose **Speech/Options**. The Speech Parameters Dialog Box appears; it contains controls for speed, pitch and volume, with defaults set at a middle range. Try moving the controls backward or forward, listening to the difference in the way the words are read.

WinReader is not just a toy, though. Its primary value lies in helping you double-check information. You can import any text file you like -- up to approximately 50,000 characters -- and have it read by WinReader. To do so, select the text file you want read aloud by choosing **File/Open** and then selecting or typing the text file name. When the text file is displayed, select the text you want read aloud, using the mouse as described above (or position the cursor in front of the first character you want read aloud and then press **Shift** to begin marking; continue holding **Shift** down and position the cursor after the last character to be read aloud. Release **Shift**). The selected text is highlighted in reverse video. If you select no text, the entire file will be spoken. To hear the selected text, click the yellow speaker button or press **Alt-R**.

Tip When you work with WinReader, click **Help/Contents** to obtain a full description of WinReader commands.

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SOUND STATION

Sound Station allows you to create your own audio files. This enables you to record and play back any combination of human voice and/or music. It also allows you to add voice annotation to word processor or spreadsheet documents. Start Sound Station by double-clicking on its icon or by selecting **Program Manager/File**, choosing **Run**, and typing **DSPSS.**

The Sound Station Dialog Box appears. In a horizontal line across the bottom you will see five buttons. From left to right, they are:

⇒ **Play**: Commences the play of any audio file currently loaded.
⇒ **Stop**: Stops the play of an audio file in progress.
⇒ **Rewind**: Halts the play of an audio file in progress and returns to beginning.
⇒ **Pause/Resume**: Toggles between pausing the play of an audio file and resuming that play.
⇒ **Record**: Records an audio file.

Try this: Click the red Record button and speak into the sound unit. When you are through speaking, click **Stop**. Then click **Play**. You will hear your own voice.

A wavy yellow line begins running horizontally across the middle of the dialog box as you speak. This is called a wave form. It is a visual representation of your voice. You can delete any portion of the wave form by clicking the left mouse button and highlighting the portion you want deleted. When you have done so, choose **Edit/Cut**.

You can also copy a particular sound to another location on the wave form. Do so by highlighting the portion to be copied. Choose **Edit/Copy**. Place the pointer where you want the wave form copied, and choose **Edit/Paste**.

You can also record directly from an audio source, by connecting a CD, tape player, or other device to the line-in jack (Figure B),

Tip While you are working with Sound Station, a full description of its commands can be obtained by clicking **Help**.

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Technical Specifications

A. HOST SYSTEM REQUIREMENTS

DSP Solutions Compatible MS-DOS Audio Applications

- MS-DOS or PC-DOS version 3.3 or higher
- 8086, 8088, 80x86 CPU
- 640KB RAM minimum
- Parallel port
- 1.8 MB hard disk space for DOS Install

Windows Audio Applications

- Microsoft Windows version 3.1 or later
- 80386 or higher CPU
- Parallel port
- 1.8 MB hard disk space for Windows drivers and utilities
- 3.5 MB hard disk space for Full install (DOS and Windows)

Sound Blaster and AdLib Compatible MS-DOS Software

- MS-DOS or PC-DOS version 3.3 or higher
- 80386 or higher CPU
- 2MB RAM minimum
- Parallel port

B. HARDWARE SPECIFICATIONS

Effective Bandwidth:

Playback:	16KHz
Recording:	3.4KHz

Line-Out:

D/A Single Frequency Distortion:	-60dB @1KHz
	-55dB @10KHz
Max Level:	1.3V RMS
Signal to Noise Ratio (unweighted):	-72dB

Built-in Speaker:

Single Frequency Distortion:	-54dB @1KHz
	-50dB @10KHz
Signal to Noise Ratio (unweighted):	-70dB

Headphone Out:

Single Frequency Distortion:	-57dB @1KHz
Signal to Noise Ratio (unweighted):	-70dB

C. DIGITAL AUDIO PLAYBACK AND RECORDING

Stereo PCM Playback:

- 8/16 bits linear or 8 bit μ-law:11.025KHz, 22.050KHz, 44.100KHz

Mono PCM Playback:

- 8 bit linear, 8 bit μ-law, 8 bit a-law, 16 bit linear: 4KHz to 44.1KHz

Mono ADPCM Decompression and Playback:

- DVI 4 bits per sample (BPS), OKI 4 BPS, Sound Blaster 4 BPS, Sound Blaster 2.6 BPS, or Sound Blaster 2 BPS: 4KHz to 44.1KHz

Mono PCM Recording:

- 8 bit linear, 8 bit μ-law, 8 bit a-law, or 16 bit linear: 8KHz and 11.025KHz

Mono ADPCM Compression And Recording:

- DVI 4 bits per sample (BPS), OKI 4 BPS, Sound Blaster 4 BPS, Sound Blaster 2.6 BPS or Sound Blaster 2 BPS: 8KHz and 11.025KHz

D. MUSIC SYNTHESIS

- Functionally compatible with 2-operator, 11-voice OPL2 FM synthesis
- Compatible with Sound Blaster and AdLib FM Synthesizer ports

E. DIGITAL SIGNAL PROCESSING

- Audio Compression: A-law, μ-law, IMA ADPCM, SB ADPCM, OKI ADPCM, CVSD
- Voice Compression: LPC and CELP (playback only), RELP (record and playback)

F. AUDIO MIXING

Audio sources for input mixing during recording: Internal Microphone OR Mono Microphone In (Dynamic or Electret) OR Stereo Line-In (recorded as mono, Left + Right)

Audio sources for output mixing during playback: Stereo Digital Audio plus Stereo Line-In OR Mono Synthesized Music plus Mono Digital Audio plus Stereo Line-In

Volume Control: Master volume control in the range 0-94.5dB

Gain Control: AGC for Microphone Line-In with software sensitivity control

G. DIGIPLAY/DIGIREC AUDIO FILE FORMATS

The DigiPlay and DigiRec utilities support the following audio formats:

- Windows Wave Files (*.WAV)
- Creative Labs Speech (*.VOC)
- IBM Linkway CVSD (*.CVS)
- Digispeech CVSD (*.CVS, *.CVx)
- Digispeech std. (*.PAC), DigiPlay only
- Digispeech fixed (*.FIX), DigiPlay only
- ADPCM (*.OKI)
- PCM linear (*.LIN)
- PCM μ-law (*.U)
- PCM a-law (*.A)
- Intel DVI (IMA standard) ADPCM (*.DVI)
- Digispeech RELP (*.RLP)
- Creative Labs ADPCM; 2:1, 3:1, and 4:1 formats (*.VOC)

The file format for these types of audio files is determined by an internal header rather than by file extension. Therefore, you may find that other extensions may be used to represent the same data formats.

In addition to the above formats with defined headers, DigiPlay also supports the following formats via command line arguments:

- IBM LPC; playback only
- ASCII TEXT; First Byte Text-to-Speech Engine must be loaded first.
- Stereo PCM

H. POWER MANAGEMENT

Power Down Mode:

- Digispeech Plus is put on "hold" by the host when no sound is played, typically saving 300 mW
- Resumes full power when a power up command is received from host
- Restores internal state of hardware upon power up
- Does not generate popping sound upon power up and power down

I. SYSTEM RESOURCE USAGE

- I/O Address Space:
  Parallel port addresses: 278H to 27BH **or** 378H to 37BH **or** 3BCH to 3BEH
- Memory Address Space: Not used
- Interrupts: Parallel port interrupt: IRQ5 or IRQ7
- Hardware DMA Channels: Not used

J. CONNECTORS

Digispeech Plus
25-pin, D-type, Male - parallel port connector
Two 1/4" sockets for headphones
1/8" socket for microphone
1/8" socket for Line-In

Pass-Through Option
25-pin, D-type, female for DS311 connection
25-pin, D-type, female for printer connection
25-pin, D-type, male, for host PC

K. ACCESSORIES

9V DC power adapter (standard)
Printer pass-through adapter (optional)
Dynamic or Electret microphone (optional)
32 to 600 ohm headphones (optional)

L. ENVIRONMENTAL SPECIFICATIONS

	Operating	Non-Operating
• Temperature	-10 to 45º 21 to 113ºF	C-30 to 70ºC -22 to 158ºF
• Relative Humidity	10-90%	5-90%
• Altitude	-0.3 to 3.5Km	-0.3 to 13.6Km
(feet)	-988 to 11,500	-988 to 44,800
• ESD	10Kv, No disruption 15Kv, No damage	

M. MAXIMUM OPERATING POWER

All currents are specified at 9 volts:

- 300 mA - full volume
- 210 mA - standby

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Troubleshooting

If you are having problems with your Digispeech Plus unit, before calling Technical Support, check these five solutions to common problems:

1. Be sure that the Digispeech Plus connector is securely fastened into the parallel port.
2. Check to see that both ends of the AC adapter are plugged in appropriately to the electrical socket and the back of the Digispeech Plus sound box.
3. Check the volume control knob.
4. Be sure that the software you are using is compatible with Digispeech Plus, the IBM Speech Adapter Board, or Sound Blaster (not Sound Blaster Pro or Sound Blaster 16). Then check the setup program to see that one of these sound options was chosen.
5. If you are running under Windows, be sure that the program you are using is MPC compatible.

If the suggestions given above do not solve the problem, work your way through the following possible cause/fix solutions.

A. No sound

- Is the AC adapter plugged in? If not, plug it in.
- Is the AC adapter plugged into a socket receiving power? Try plugging it into a different socket.
- Is the unit connected to the computer's parallel port? If not, connect it.

B. Some sounds but not others

- Was the correct driver loaded? For more information, see the sections earlier in this manual on loading drivers.
- If you are operating under Windows, is the program MPC compatible?
- Is a previously installed sound device program intercepting sound data? If so, remove any other sound devices/programs previously installed.

C. The sound is not very loud

- Check to see that the volume control knob is set at an audible level.
- Are non-compatible active speakers plugged into the line-out jack? Check to be sure that they can accept line output (most low-end speakers accept only headphone output).
- Are non-active speakers plugged into the line-out jack? The line-out jack is not designed to drive non-amplified speakers.

D. The sound is distorted or slow

- Is the computer running slowly? Check the turbo switch, and be sure your computer meets minimum requirements, as outlined in the Technical Specifications section given above.
- Is the computer doing too many other things at the same time? This will usually happen only in Windows. To fix the problem, close some applications.
- Is the software application compatible with Digispeech Plus? Check the application's manual for compatibility.

E. Works with DOS programs, but not Windows

- Have the Windows drivers been loaded? Check the Drivers window under the Control Panel to see if the DSP driver is listed among the installed drivers. If not, see the section in this manual on how to install Windows drivers.
- Is a previously installed sound device program intercepting sound data? If so, remove any other sound devices/programs previously installed.
- Is the software application MPC compatible? Check the application's manual for compatibility.

F. Works with Windows programs but not with DOS

- Has the DOS driver been loaded? See the section in this manual on how to install DOS drivers.
- Is the software application compatible with Digispeech Plus? Check the application's manual for compatibility.

G. It used to work but it does not now

- Is there interference from a newly-installed program or hardware? If so, remove any newly-installed programs or hardware and see if the problem disappears.
- Boot the computer using a system disk, then run the DGSETUP program.

H. My mouse/trackball/modem does not work when I use Digispeech Plus

- Is there a hardware or driver conflict? Check the hardware manuals to make sure that you do not have two devices with the same address or interrupt setting.
- Is the mouse/trackball/modem bad? Follow the checkout procedure in the manual for the peripheral device that has gone bad.

I. My computer crashes, locks up, or makes funny noises when I use the Digispeech Plus

- Is there a hardware or driver conflict? Check the hardware manuals to make sure that you do not have two devices with the same address or interrupt setting.
- Is Digispeech Plus plugged into something other than a parallel port? Make sure the unit is plugged into a parallel port. If a printer works when plugged into the port, Digispeech Plus should also work when plugged there.

J. Digispeech Plus works on my friend's computer, but not mine

- Is your computer configuration correct? Make sure your hardware/software configurations are as outlined in the Technical Specifications section.
- Does your computer have different hardware? Remove any hardware different than the working setup.
- Does your computer have different software? Change your software to match the working setup.

K. Both the Digispeech Plus and the printer do not work with the printer pass-through adapter.

- Are the Digispeech Plus and the printer connected to the correct ports? If not, switch them and see if it works.

If you have tried the suggestions given above and Digispeech Plus still does not work, contact us at:

Digispeech Plus Technical Support
1157 San Antonio Rd.
Mountain View, CA 94043
7:30-4:30 Pacific Standard Time
Phone: (415) 919-4000
Fax: (415) 919-4040
BBS: (415) 919-4199

If you are phoning, be sure to have your computer up and running so that we can talk you through the problem and provide a solution. Whether phoning, faxing, or writing, please always provide the following information:

⇒ Where and when you bought the product.
⇒ The type of hardware you are using: Processor (386, 486; which variety?), amount of RAM.
⇒ DOS or Windows version you are running.
⇒ Specific details about your problem, such as when it occurs, what you were doing at the time it occurred, exact content of any messages you saw on the screen, what you were trying to accomplish at the time the problem occurred, and whether a certain set of actions causes the problem to occur repeatedly.
⇒ A listing of your current AUTOEXEC.BAT and CONFIG.SYS files.

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FCC Warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

◆ Reorient or relocate the receiving antenna.
◆ Increase the separation between the equipment and receiver.
◆ Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
◆ Consult an experienced radio/TV technician for help.

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