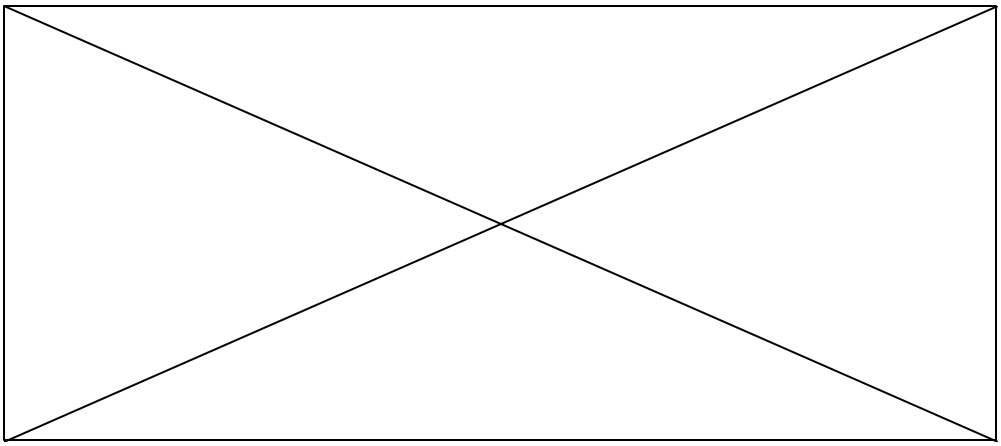
Interactive Sound Workstation

Cable Diagram



Products and Vendors

Computers
Apple Macintosh Plus
with hard disk drive
Apple Macintosh SE
with internal hard disk
Apple Macintosh II
with internal hard disk

Peripherals
Apple CD SC Drive

Software
HyperCard, Apple Computer, Inc.
ResCopy (part of the
Videodisc Toolkit), APDA[š]

Sound Source
Authentic Sound Effects
(Volumes 1-3),
Elektra/Asylum Records

Sound Digitizers
MacRecorder, Farallon
Computing, Inc.
Impulse Audio Digitizer,
Authorware, Inc.

Powered Speakers
Bose Roommate Powered
Speaker System
Sony SRS 55 (has volume control)

Vendors
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010

Apple Programmers and
Developers Association (APDA)
20525 Mariani Avenue,
M/S 33G
Cupertino, CA 95014
800-282-2732
Authorware, Inc.
8500 Normandale Lake Blvd.
Minneapolis, MN 55437
(612) 921-8555

Bose Corporation
The Mountain
Framingham, MA 01701
(508) 879-7330

Elektra/Asylum Records
9229 Sunset Blvd.
Los Angeles, CA 90069
(213) 205-7400

Farallon Computing, Inc.
2150 Kittredge St.
Berkeley, CA 94704
(415) 849-2331

Sony Corporation of America
Sony Drive,
M/S 3-17A
Park Ridge, NJ 07656
(201) 930-7669

Apple Computer, Inc.

20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
TLX: 171-576

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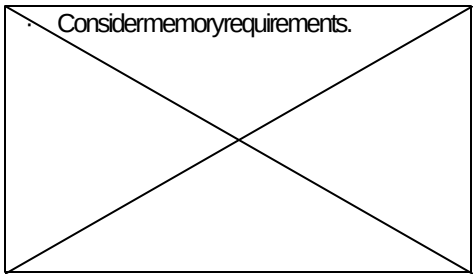
Design Considerations	· Define the sound contents of your stack.	· Determine the importance of sound effects, music, and voice to your presentation. If sound will not be of primary importance, determine exactly what the stack's other contents will be (text, graphics, animation, scripting, and so on) and whether these will allow enough disk space for sound.
	· Install sounds into your stack.	· If you are digitizing a sound, use the sound editing software to save the sound into your stack as a resource. · The ResCopy stack will delete, rename, renumber, and play sounds that are installed in a stack. · If you want a sound to be accessed by all of the stacks on a hard disk or a floppy disk, install the sound into the Home stack of that disk and start HyperCard from the Home stack. However, if you will be distributing your stack, install all the sounds you will need directly into your stack.
	· Consider memory requirements.  *Memory requirements for 20 seconds of digitized sound*	· If your stack will be used primarily on a Macintosh computer with 1 megabyte of RAM, limit the size of each sound to less than 100K. · If your sound is too large to play in one piece, use the sound editing software to break the sound into segments of six to eight seconds. Play these segments at intervals that allow them to be rendered as one continuous sound. · Lowering the sampling rate (from 22 KHz to 11 KHz, for example) will allow you to record longer sounds in the same memory space. However, the sound quality is diminished as the sampling rate is lowered.
	· Test the sounds.	· Because there are processing speed differences between the Macintosh SE and the

Workstation Components	· Macintosh Plus, Macintosh SE, or Macintosh II computer · Sound digitizing hardware, software, and cables · HyperCard · ResCopy (from Videodisc Toolkit) · Sound sources: Compact audio disc, cassette, record, HyperCard stacks, live sounds	· Audio patch cables to connect audio source to sound digitizer · Powered speaker(s) · Optional: Apple CD SC or hard disk drive for library of sounds; MIDI equipment

Equipment Descriptions

Computer
An Apple® Macintosh® Plus, Macintosh SE, or Macintosh II computer can serve as the basis for this workstation. However, keep in mind that working with sound may require more than 1 megabyte of RAM. (The Macintosh Plus and the Macintosh SE can have 1, 2.5, or 4 megabytes of RAM. The Macintosh II can have 1, 2, 4, 5, or 8 megabytes of RAM.)

Sound digitizing hardware and software
The sound digitizing hardware converts sound from analog to digital signals, and then inputs these digital signals into the Macintosh computer. The sound digitizing software gives you the ability to view, edit, and store sounds.

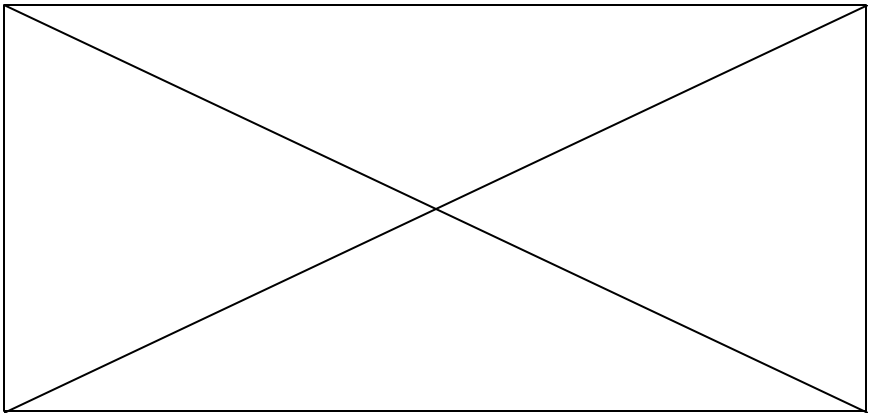
Software
HyperCard–Use HyperCard to create scripts to control and display your presentation.
ResCopy–Use ResCopy (comes with Videodisc Toolkit software) to copy sounds and other resources from one stack to another.

Sound sources
These may include an Apple CD SC® drive, a sound library (with record, compact audio disc, or computer software), a compact disc player, a cassette player, a record player, or a microphone.

Powered speaker(s)
At least one powered speaker is recommended for better sound clarity and higher volume. Look for speakers that can be attached to portable stereo equipment (including devices such as a Sony Walkman), and that have volume control.

Hard disk drive
Because digitized sounds consume large amounts of disk space, a hard disk drive is recommended for storing your sound library. This can be an internal or external Apple hard disk with 20, 40, or 80 megabytes of storage.

Configuration



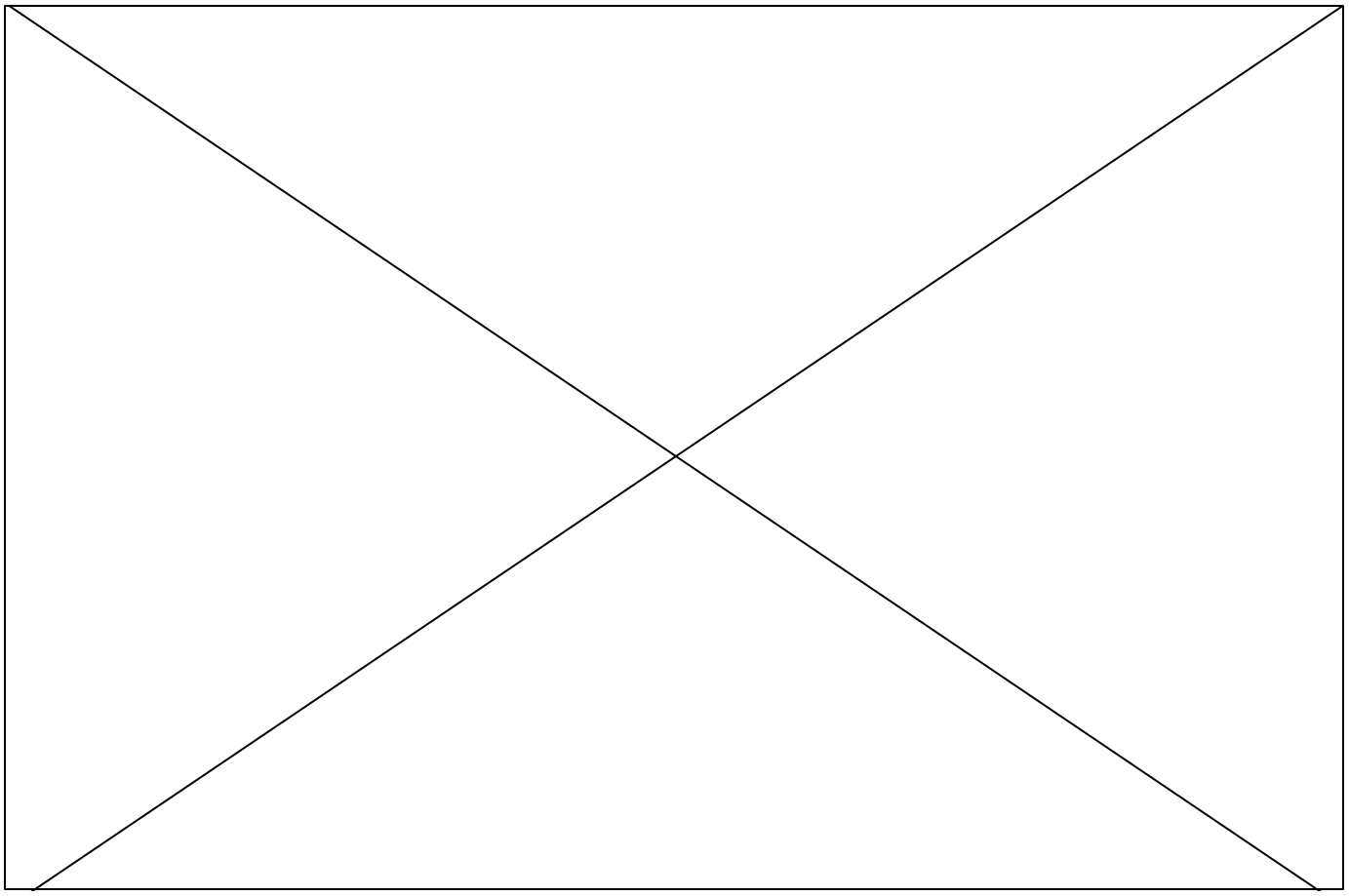
Process

1. Determine the purpose and objectives of your HyperCard stack.
2. Design and create the HyperCard stack.
3. Identify sounds for your HyperCard stack. Sounds can be located in other stacks, stored on cassettes, records, or compact audio discs, or recorded live.
4. Obtain sounds and install them into your HyperCard stack.
    a. If you don't find the sound you need in a HyperCard stack, you will have to digitize it. First, open the sound digitizing application. If the sound is live, digitize it through the digitizer.

    If the sound is on a cassette, record, or compact disc, connect the player to the sound digitizing device that is connected to your Macintosh computer. Now digitize the sound, and save it as a resource in your destination stack.

    b. If you need a sound that is in a HyperCard stack, you will have to copy it. Open the ResCopy stack (located in the Videodisc Toolkit) or a sound digitizing application. Copy the sound from its source stack to your destination stack.
5. Create buttons and scripts in your HyperCard stack so that you can play the sounds.
6. Test all the sounds in your stack.

Interactive Sound Workstation



Applications

The Interactive Sound Workstation integrates sound into a multimedia project. It lets you create HyperCard® stacks that have high-quality digitized sound effects, voice, and music.

You can compose original sound and store it in a stack. Or you can modify and install existing music, sound effects, and/or voice recordings. The result is a HyperCard presentation with synchronized music and narration.

Sound heightens the audience's interest in a presentation by providing a more realistic experience of the subject matter. Sound also helps to highlight and reinforce key concepts.