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## 100Base-T

The most commonly used EtherNet standards, ThinNet, ThickNet and 10Base-T all make use of a 10Mbps transfer rate. Originally proposed in 1992, the 100Mbps standards, including 100Base-T are just now beginning to come into common use. Although they are still fairly expensive to implement, 100Base-T solutions are expected to drop in price just as 10Base-T solutions did previously.

You can combine an existing 10Base-T network with a new 100Base-T network by using a 10/100 bridge. The current generation of EtherNet cards include dual speeds and auto-sensing to tell the Mac whether it's on a 10Base-T or 100Base-T network.

### *See Also*

Bridges, EtherNet; Networking; Network Topology

## 128-Font Limit

The number of screen font suitcases you can put in the Font folder is limited to 128 suitcases. Does that mean you can't have more than 128 fonts? Not at all; there are a number of ways around this limit. First, you can have more than one font in one suitcase. The Minion font family, for example, might have Minion, Minion Bold, Minion Italic, Minion Bold Italic, Minion Black, Minion Black Italic, Minion Display, and so on, all in one suitcase.

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You can also create your own suitcase by double-clicking the font suitcase and dragging a screen font from one suitcase to the icon of the other. The selected font is copied into the new suitcase, and you can keep adding fonts to your hearts content. You might want to put serif typefaces in one suitcase and sans serif in another, or you could separate them by vendor; ImageClub fonts in one suitcase, Adobe in another, and so on. You can also copy the entire contents of one suitcase into another by dragging one suitcase's icon on top of another.

Another way to get around the 128 font limit is by using a font utility program such as Suitcase or MasterJuggler. These enable you to store as many fonts as you want outside the System Folder's Fonts folder, bypassing the 128 font limit altogether.

To copy screen fonts from one suitcase to another, follow these steps:

1. Double-click the screen font suitcase to reveal the suitcase's contents.
2. Select the screen font(s) you want to copy to a different suitcase.
3. Drag the selected font(s) from the open suitcase to the icon of the other suitcase and release the mouse button. The selected screen fonts are copied.
4. If you want to copy an entire suitcase into another suitcase, drag the icon of the suitcase on top of the suitcase you want to copy into and release the mouse button. The contents of the suitcase are now in the new suitcase.

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*See Also*

Double-Click; Dragging; Fonts; Icons; MasterJuggler; Suitcase

## 1394 Fire Wire

The 1394 Fire Wire is a digital transmission standard originally developed by Apple that has been proposed as an industry standard for possible industry-wide usage. This standard, which could be used in place of SCSI, serial lines, and other means of connecting digital devices, supports a transfer rate of 12.5 M/bytes per second, and can be adopted for other use in devices, such as ink jet printers, and even hard drives. Fire Wire addresses many of the limitations of SCSI: enabling hot plugging (devices being connected while other devices are on) up to 60 devices at a time, and automatic unique addressing of devices.

*See Also*

Digital Video Cameras

## 1984

The year 1984 has special significance for the Macintosh. On January 24th of that year, Apple Computer introduced the Macintosh to the world for the very first time. But the real excitement started two days earlier during the Super Bowl. Early in the third quarter of the LA Raider's rout of the Washington

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Redskins, watchers were dazzled by a commercial unlike any they'd seen before.

Apple's 1984 commercial depicted a world straight out of George Orwell's novel of the same name: rows of bald, despondent workers sit watching "big brother" on a huge screen as he drones on in newspeak about the ideology of the Great State and its "Unification of Thought." Meanwhile, a woman wearing shorts and a white Macintosh T-shirt runs down a corridor as she is chased by uniformed storm troopers. She carries a sledge hammer. The runner reaches the room with the drone-like workers and hurls the hammer at the screen, smashing it to bits and letting in light and fresh air that washes over the stunned workers. Finally, the screen displays the words "On January 24th, Apple Computer will introduce Macintosh. And you'll see why 1984 won't be like '1984.'"

The commercial was an immediate sensation. Phone calls poured in to Apple, CBS, and Chiat/Day, the advertising agency that created the commercial for Apple. Although Apple paid to show the ad only once, it was shown on the news programs of all three national networks and many local stations. The commercial was so outrageous, it was news in itself. To this day, 1984 remains one of the most talked about commercials of all time.

1984 was directed by Ridley Scott, the director of such Hollywood hits as *Alien* and *Blade Runner*. It was produced at a cost of nearly one million dollars (not to mention the cost of airtime during the Super Bowl). Scott hired London skinheads to play extras as the worker drones, and paid others \$125 a day to

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shave their heads just for the commercial.

Casting the runner was more of a challenge. After a series of models were unable to throw the hammer without getting dizzy or endangering the crew, Ridley Scott decided to look for someone a bit more athletic. Anya Major, a model and former discus thrower, fit the bill perfectly.

In hindsight it may be hard to believe, but the 1984 commercial almost didn't see the light of day. When Chiat/Day presented the finished commercial to Steve Jobs and John Sculley, they loved it. When it was shown at Apple's annual sales conference, the audience went wild. But when Apple's board of directors saw it, it was a different story. Not only did they not like it, many of them thought it was the worst commercial they had ever seen.

Based on the board's reaction, Apple sold back most of its Super Bowl airtime and planned to run a much more tame commercial, *Manuals*, instead. The board hadn't outright refused to run the commercial, however, and Sculley left the final decision to Bill Campbell, the vice president of marketing, and Floyd Kvamme, executive vice president of marketing.

In the end, Campbell decided to run the commercial, and Apple managed to buy back its airtime. The rest, as they say, is history.

***See Also***

Jobs, Steve; Sculley, John

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## 24STV

A NuBus video digitize and display board manufactured by RasterOps (now owned by Truevision). The 24STV was one of the first digitizer released for the Macintosh for less than \$1,500. This board is no longer manufactured. Software and an FAQ are still available at the RasterOps home page: <http://www.rasterops.com>.

## 3D

The task of creating 3D photorealistic images or sequences occurs in three separate but interdependent tasks: modeling, animation, and rendering

- Modeling is the process of creating 3D objects or scenes containing several objects. This involves tasks, such as lathing, extrusion and free-form modeling.
- Animation is the process of creating a moving sequence of images. This requires that you define the motion and or changes in shape of objects, lighting, and other variables. If you only want to create 3D still images, you may not be interested in these features.
- Rendering is the process of creating photorealistic images. This task involves texture mapping— (adding surfaces to an object) as well as adding lighting.

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Often the lines between these three steps are blurred; textures can be animated over time and an object can morph (change) its shape during animation.

Most general purpose 3D tools, such as Fractal Design's Ray Dream Designer, Specular's Infini-D, Strata's StrataVision and StudioPro and Macromedia's Extreme 3D provide all of these functions, but not all programs do. For example, Electric Image Inc.'s Electric Image, a high-end animation tool, provides very limited modeling tools.

In addition to the general purpose 3D modeling and rendering packages, there are several niche products. For those who just want to create 3D logos, there are several easy-to-use packages, including Fractal Software's AddDepth, and Specular's LogoMotion. Virtus WalkThrough makes it possible to explore 3D scenes in real time, whereas KPT Bryce creates dramatic landscapes and Fractal Design's Poser models human shapes.

If you haven't used a 3D program before, be prepared to spend some time on the learning curve. 3D programs are complex because of the number of new things you'll have to learn, from how to build the basic shapes to manipulating lighting. Creating even the basic shapes (that is, anything more complex than a ball or a block) can take a lot of time.

You might want to consider buying collections of pre-built objects. Several software developers offer collections of general purpose objects specifically tailored to their application. There also are sets available from other companies. These may be useful if they have the exact objects you need, but

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be aware that if the objects are supplied in DXF format, you might not be able to edit them after you import them into your program.

When creating complex objects, always try and break an object down into simple parts. It's easier to work that way, than to try and create a complex shape from one object. All programs provide some way to link objects together, so working in small pieces shouldn't be a problem. When creating animation, you should render in wireframe first to see whether it looks right, before spending time rendering the whole sequence. Test rendering single frames along the sequence also makes sense.

If you frequently use 3D software, you need the fastest computer you can afford—previewing scenes is time consuming. Rendering an animation sequence can take days. That's why 3D modeling programs offer network rendering (sometimes called a rendering farm) that use multiple computers to create the final work.

Other 3D developments that may or may not have a dramatic impact in the coming years include:

- VRML (Virtual Reality Modeling Language) a general purpose description for 3D models and scenes that is being used on the World Wide Web.
- QuickDraw 3D, system software developed by Apple which could make it possible for almost any application to open and display 3D models. QuickDraw 3D uses a file format (3DMF) that is being adapted for use



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with VRML.

***See Also***

Infini-D; Ray Dream Designer; Strata Vision

## 3DMF Optimizer

A freeware utility that optimizes QuickDraw 3D (3DMF) files by removing duplicate vertices and other unnecessary elements. Depending upon the efficiency of the 3D program that created the original file, 3DMF Optimizer can reduce a file's size and decrease load time and display time.

***See Also***

3D; 3DMF; QuickDraw 3D

## 3DWorld

3DWorld is a dedicated QuickDraw 3D application. With this application, the full potential of QuickDraw3D can be realized and explored, especially the real-time magical manipulation of textured graphics.

The interface has a gridded view plane surrounded by four palettes: Tools, Camera, Lights, and Info. The view plane may be seen from a Home View, Custom, Top, Front, Left, Right, and Back. You can also choose to "View Selected," which places the selected object in the center of the view plane. A

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special “Spin Around Look At” option animates the view plane, allowing you to appreciate the scene from a circular orbit. A mouse click stops the spin at the desired position. The view plane can be set for shaded rendering or wire frame. The Tools Palette contains primitive 3D Objects, Plug-ins (a separate disk of plug-ins is available from MicroSpot, and more are being written), and 3D manipulation Tools. The Camera palette displays the visual icons that allow you to change views and take snapshots of a scene. The Light Palette addresses Brightness, Point Sharpness, Ambiance, Color, and Shadows on/off. All Light adjustments can be seen in real time as light plays upon the objects, including real time updating of shadows cast on the grid plane. The Info Palette enables you to adjust the Transparency, Shininess, Reflectivity, Color, Position, and Size of any selected object or group in the scene. Settings are saved with the file.

**Modeling Tools** The array of primitive objects is more extensive than any other 3D application in the field, and includes the standard Sphere, Cone, Cylinder, and Cube. In addition, an interactive 3D polygonal primitive can be constructed (with user defined sides and angles), two types of user defined 3D Multigons, multisided Lathed objects, extruded 3D Text, singular and multiple “Mountains,” Pipe Extrudes, and definable Torus objects. Except for the primitive Sphere, all other 3D objects can be edited and customized, including altering the placement and size of selected faces.

**Texture Mapping** Because of the QuickDraw 3D functions, 3Dworld’s texture mapping is displayed in real time while objects are being moved or animated. Finer texture mapping controls, such as the ability to select among various

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mapping types (planar, spherical, cubic, and so on) are missing. Objects are mapped by default, meaning that their shapes determine how textures are applied. Unique to this application, imported PICT files can be instantly targeted as backgrounds, foregrounds, mapped as textures to a selected object, or imported as an object themselves. The last option displays the PICT file mapped on a rectangular 3D plane that can be placed, rotated, and resized.

**Lights** Lights can be added as either spotlights or point lights, and can be made visible or invisible. Their various parameters are controlled from the Lights Palette.

**Rendering** In most cases, rendering is a moot point in 3DWorld because the main purpose of the application is to save 3DMF files. 3DMF files can be transported to any application (such as Strata StudioPro) that accepts and displays QuickDraw 3D. One of the 3DWorld plug-ins enables you to save a PICT file of the 3D display.

**Included Libraries** A library of plug-ins includes the following:

- **Bomb**—Acts as a deletion key for an object, but allows it to explode before it disappears.
- **Color**—Instantly applies the color to the selected object from the Tool Palette.
- **CSG**—An interactive Boolean operator that enables you to use one object to cut away sections of another.

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- Distance—Enables you to measure the distance between any two selected points on the 3D screen.
- Gravity—Any selected object drops down to the surface of the Grid.
- Internet—Enables you to assign an URL address to any selected object.
- Mountain—Enables you to create a “Mount Fuji” with a random slope.
- Mountains—Enables you to create a range of random 3D peaks.
- Random Color—Applies a random color to a selected object.
- Save As PICT—By holding down the Option key, you can save a PICT image of the display while controlling resolution and DPI settings.
- Teleport—Instantly teleports the view camera to the center of any selected object, making this an excellent tool for moving around inside of a 3D object.
- Texture—3DWorld maps any texture once to a selected object, but this plug-in (in conjunction with the `⌘` and Option keys) enables you to map textures in a repetitive fashion on any selected object.
- VR—Enables you to interactively pan and tilt the camera.
- Walkthrough—Enables you to interactively walk through a scene, similar to moving through any virtual reality space.

Animation The 3DMF convention enables instant interactive walkthrough

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animations. Various 3DMF players can be downloaded from the Internet to display the full 3D environment, enabling you to navigate within it interactively with the mouse. Choosing “Walkthrough” at any time from within 3DWorld enables you to move around and among the objects in your scene in real time.

Other Special Features In keeping with the VRML (Visual Reality Modeling Language) worlds becoming more common on the Internet, you can assign an “URL” (Internet address or off-site location) to any 3D object in a 3DWorld scene. When the object is clicked while you’re moving through the 3D environment on the Internet, you are instantly transported to the “address” assigned to the object. This makes 3DWorld an excellent choice for interactive Web page design. Any textured object created in StrataStudio can be saved as a 3DMF file and loaded into 3DWorld, where it can be placed in relation to other objects in an interactive 3D environment. Thus 3DWorld can be used as an animation browser for all 3DMF environments. Because StrataStudio can import DXF objects, 3DWorld can be used as an animation browser in very complex virtual reality scenes.

File Load/Save Conventions 3DMF (QuickDraw 3D) files can be loaded and saved. A special plug-in option also enables you to save PICT images of the 3D screen.

## 3-D Body Adventures

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This CD-ROM is ideal for the child who plans a career in medicine. It's extremely detailed and contains some of the most realistic and medically accurate illustrations of any anatomy program, adult or child. The package includes two pairs of cardboard and cellophane 3D glasses, which help you see body parts in stereo format. It's more successful with some than others. The "fly through" view of the brain and ear structure are awesome, although the capillaries aren't impressive. There's a fully narrated text to accompany the 1,000 images, 3D models, and animations. The program includes the illustrations from the Visible Human Project, a production of the National Laboratory of Medicine. This set of electronically dissected drawings lets you explore the human body in a way never before possible. The result is not unlike a full-body CAT scan. You can view a cross-sectional slice at any level from head to toe.

Clicking a structure tells you its name. A separate anatomy encyclopedia describes and illustrates the muscles, skeleton, and internal organs, and features 360 degree rotation so you can see all sides of a particular spot. There's even a game, although it's basically a shoot'em up. You enter the patient's lungs or bloodstream and zap 10 bacteria which are hiding out among the lung cells or brain tissue, without zapping the patient's healthy cells in the process. It's a lot harder than it sounds.

### ***See Also***

Software, Educational, Grades 7-12; Software, Educational, Pre-School; Software, Educational, K-6

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## **3-D Rendered Graphics, Using in Games**

*See*

3-D Ultra Pinball, Eastern Mind, Marathon, Rebel Assault II, The Riddle of Master Lu, The 7th Guest, TimeLapse, Yellow Brick Road II

## **3-D Speakers**

*See*

Spatial Enhancement

## **3-D Ultra Pinball**

3-D Ultra Pinball from Sierra Online adds new elements to Mac pinball by using 3-D graphics and authentic movement. You play on three separate tables, either at different times, or warping back and forth between them. Each table requires you to conquer specific challenges which will allow you to build a space colony. Eventually, you win enough points to get a star-cruiser off the ground and win the game. Sierra Online also incorporates online help with a link to Sierra's World Wide Web Site directly imbedded in the game menu, a helpful trend which other game makers are also starting to follow. Other great pinball titles include Loony Labyrinth and Crystal Caliburn from StarPlay Productions, Tristan and Eight Ball Deluxe from Amtex Software and the forthcoming FullTilt! Pinball from Maxis.

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*See Also*

Arcade-Style Games; Pinball Games

## 32-Bit Addressing

32-Bit addressing lets your Macintosh recognize and make use of any installed RAM over 8MB. The Macintosh system was originally designed to recognize only 8MB of RAM. When it became apparent that the Mac would outgrow this limit, Apple introduced an extension, called the 32-Bit Enabler, that let the system recognize additional RAM. Since System 7 was introduced, the capability to access more than 8MB of RAM is built-in to the system and can be toggled on or off through the Memory Control Panel where it is now referred to as 32-Bit Addressing. In Power Mac models, 32-bit addressing cannot be turned off.

*See Also*

Control Panels; RAM; System 7

## 32-Bit Enabler Extension

The 32-Bit Enabler extension enables your Macintosh to recognize and make use of any installed RAM over 8MB. The Macintosh system was originally designed to recognize only 8MB of RAM. When it became apparent that the Mac would outgrow the 8MB limit, Apple introduced an extension, called the



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32-Bit Enabler, that let the system recognize additional RAM installed besides the initial 8MB. Since System 7 was introduced, the ability to access more than 8MB of RAM is built-in to the system and you can toggle it on or off through the Memory Control Panel where it is now referred to as 32-Bit Addressing.

Normally, you would leave 32-bit addressing on, but there is a rare circumstance where you might need to temporarily turn it off. Today's applications are called 32-bit "clean" because they've been designed with Apple's updated specifications. But there are programs, designed before Apple introduced these updated specs, that are not 32-bit clean and might crash or freeze-up your Mac if you were to run them with 32-bit addressing turned on. To avoid this, the Memory Control Panel enables you to turn 32-bit addressing off to run an older program.

If you have installed more than 8MB of RAM, in order to have your system recognize more than 8MB of RAM, you need to turn on 32-bit addressing. To enable 32-bit addressing for Macs with over 8MB of RAM, follow these steps:

1. Choose Memory from the Control Panels folder.
2. Click the "on" radio button for 32-bit Addressing.

Note: 32-bit Addressing is on by default, but if you install additional RAM, 32-bit addressing may toggle off, and you'll have to turn it on for the system to see the newly installed RAM.

***See Also***

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Click; Control Panel; Crash; Extensions; Freeze-Up Memory; Radio Button; RAM; System 7

## 4D Calc

4D Calc is an add-on spreadsheet for 4th Dimension database. It provides all typical spreadsheet functions, including analysis and forecasting of numerical data. 4D Calc can take cell formula references from database components, or can create an entire spreadsheet directly from information in the database. It will not work unless 4th Dimension is installed, although once in place, it can be used for spreadsheet functions independent of your 4D database. 4D Calc documents can be saved as Macintosh files in SYLK or text, or stored within a record as a 4th Dimension field. Because 4D Calc references information from your 4th Dimension database, changes are dynamically reflected from the database to the spreadsheet.

4D Calc's spreadsheet can hold up to 256 columns and 8,192 rows, and will hot link to other 4D modules as well. Users may build custom layouts combining the database and spreadsheet, inserting buttons, and adding menu bars and floating windows as needed. The combined system gives maximum flexibility within the 4th Dimension format.

### *See Also*

4th Dimension; Databases; Spreadsheets

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## **4D Server**

*See*

Servers/Database

## **601 Processor**

*See*

Processors, PowerPC

## **603 Processor**

*See*

Processors, PowerPC

## **604 Processor**

*See*

Processors, PowerPC

## **680x0 Chips**

*See*

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## Processors

### 7th Guest, the

The 7th Guest is as close as we have come, so far, to a horror classic on CD. The cinematic presentation of the game is simply amazing. You are the 7th Guest invited to a dinner at the creepy Stauf mansion. In the opening scene, you learn that Henry Stauf made his fortune from toys that killed the children who played with them. Seems he sold himself to devil to get rich and the kids got the short end of the deal. You then wind up stuck in the mansion and must solve more than twenty gothic-themed puzzles, like matching skulls on pieces of cake, to get out.

The 7th Guest is a linear game, which means you must complete a certain puzzle to be able to move onto the next level. The innovative use of video, background art and 3-D animation make playing the game similar to being in control of an interactive horror film. Most of your time in the mansion is mainly spent exploring, looking for puzzles to solve. Although not as action packed as adventure games like Return to Zork and The Daedalus Encounter, The 7th Guest succeeds on account of its originality and high production quality. The sequel, The 11th Hour, resurrects the evil events of the past as a reporter visits the scene of the crime, and vanishes while investigating the now-decaying mansion.

*See Also*

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Adventure Games; Daedelus Encounter, the; Eastern Mind; Full Throttle; Hell; Myst; Return to Zork; Riddle of Master Lu, the; TimeLapse

## 8mm

8mm is a video tape format that uses small cassette tapes, containing 8mm wide tape. It provides comparatively low image quality (250 lines of resolution), which is comparable to VHS. Although not as popular as VHS, the small tape size makes possible camcorders of very small size. For small sized digital video (less than 240 x 180 pixels) the resolution is acceptable, although because it uses a composite signal, the image quality (richness of color, clarity) is not as good as S-VHS and Hi-8 formats.

### *See Also*

Hi8; QuickTime; S-VHS; VHS; Video Digitizing

## 11th Hour, the

### *See*

7th Guest, the