ROMs, Blocks, and the Debugger

...and all that crap most of us don’t understand)

128k->Mac SE, and Mac II's Hardware Etch

Here’s a neat little one. On all Apple computers from the original 128K Mac to the SE is a peculiar easter egg. The Mac designers decided to gain some fame and glory by having their signatures etched in raised lettering inside the rear part of the Mac casing. Look closely and you will see all 47 Mac team members on the box of the computer.

I have also been told by Jai Nelson (J.I.Nelson@sms.ed.ac.uk) that underneath the motherboard of the IIcx and IIci there are etched names. There are eight signatures of the Product Design Team inscribed along the left side of the bottom of the case.

Some history: Steve Jobs, feeling that Macintosh was a peice of art, and since real artists sign their masterpieces, he and other employees of the Macintosh division in 1982 affixed their signatures to a large sheet of paper. The sigantures were then etched into the core of the tooling used for the inside of the original Macintosh. It was used until the the mold finally wore out. The sigantures were from early in 1982 when the Mac was supposed to be released. Some signatures were also added and dropped over time for various reasons. In "The Mac Bathroom Reader" you can find a complete list of the people whose sigantures appear on the Mac, see the actual signature, and find out what they were doing during production in 1994, and ten years later.

ASCII Pictures

I am not sure if I am correct about this, but I swear I can see ASCII pictures in early locations of my computer's hardware components through MacsBug. An example is the question mark below:

```
*****HHHHHH*******
**HHH******HHH****
*HHH**HHHH**HHH***
*HHHHHHHH*óm*HHHH*
*HHHHHH**HHHHHH***
**HHHHH**HHHHH****
***HHHH**HHHH*****
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Absolute Sector

In absolute sector $1 of $FA71F the Hex for the whole page says “DADA” repeated over and over again. Kind of random. Look in the Norton Disk Editor in the second page of the Boot Block called the

Bootstrap Code.

All Power Macintosh ROMs
At location DMA 40B2E280 999 there is a testimonial to Garry Dividian, the Apple software Genious who single handedly wrote the 680x0 emulator code that lurks inside every PowerMac-and that just may have saved the company. From Mac Secrets.

Any Macintosh Computer
Every Mac will play interesting sounds if it fails its internal RAM check. You can harmlessly force it to fail its check by pressing the Interrupt button or key combination (usually Command-Startup key) on your system immediately after it starts booting up. Mac II systems play interesting chimes, Quadra AV's play drum solos, LC's play a flute, and the Power Macintoshes play a sound of a car wreck with glass breaking.
I'm told that the start-up crash sounds from the LC's and Quadras are pieces of the Twighlight Zone theme.

David Johnson (johnsd10@rpi.edu) is in the process of accumulating the definitive collection of start-up and crash sounds. You can see and hear his progress to date on The Mac Line Start-Up and Crash Sounds page: http://www.rpi.edu/~johnsd10/macline/sounds.html

Disk Type
If your bytes for the disk type are $D2D7 (an MFS volume) it stands for “RW” (Randy Wigginton) in ASCII. An HFS volume would be $4244 which stands for “BD” (Big Disk) in ASCII.

Early Macintosh ROMs
32-bit ROMs for Macintosh II Code Name: Squeaky (as in “squeaky clean” since earlier ROMs were considered “dirty” because they didn’t properly use all 32 bits)

With a debugger, look at the last few locations of the ROM of your machine. Developers put their initials there, as well as the date that the ROM was linked. For example, the 128k ROM (Mac Plus) contains, at $41FFC0-$41FFFF:

ALR ELR BA BMB EHB JTC SC DLD PWD KWK LAK SEL BWed, Nov 6, 1985

These are the initials of (?=someone): Erich Ringewald, Bill Atkinson, Bill Bruffey, Ernie Beernik (sp?), Jerome Coonan, Steve Capps, Donn Denmann, Pat Dirks, ?, Larry Kenyon, and ?. My 840AV, the Powerbook, and LCIII, did not have the initials but did have the date which may suggest that newer models do not have the initials.

Easter Egg ROM sounds

From:
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Quadra From:
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Many computer systems also have sounds hidden in the ROM. To find them a program called ROMmie is required. The Quadra is PowerMac accelerated. Besides the start-up sounds, which you will find, there may also be other sounds like the ones listed below. The "Whoop there it is digitation" is 16 bit and very cool, but you will need to go to my web page to download it. David Schuab has a huge collection of start-up sounds along with these hidden ROM eggs. If you would like the file send a mesage to dschaub@csc.uvic.ca.

Mac Quadra Squeak
-
Macintosh LC 520
PowerMac Beep
-
Power Macintosh 6100/60AV
PowerMac Boing
-
Power Macintosh 6100/60AV
PowerMac Card Phaser - Power Macintosh Quadra 610 with PPC Card
PowerMac Card "Whoop There It Is" digitization - Quadra 610 with PPC Card
PowerMac PCI Bang
-
Power Macintosh 9500/120

Gestalt Selectors

From: rgaros@bio.vu.nl (Rene G.A. Ros)

Use an application like Gestalt! (by Roland Mansson) or Gestalt.Appl (by Jean-Pierre Curcio) to list the Gestalt selectors installed with your System software (6.0.4 and later). Gestalt selectors are used by programmers to determine the presence of certain hardware and software. But two selectors exist (with values 7 and 13) which only return the first name and initials of the two programmers who wrote the Gestalt Manager code. The values returned are respectively 'carl' and 'bbmc'.

Hard Drive Part Number

On some computers (mostly older Macs–it worked on a Centris 610), the Part Number for the internal drive is listed as "The HORROR Continues". You can find out if your computer says this by downloading the file "Slot Info".

Hardware Egg

There are hardware easter eggs in existence, but they are extremely

obscure and hard to find. This is one I was told about: One of the register sets is initialized with the ASCII codes for "AL SCALISE", but you will never see it unless you have a logic analyzer attached before booting. I don't understand what I just wrote, but it should make sense to a select few of you.

L & H

There's a series of L & H names. L was for Low, H was for High, the two portions of the old 2-chip ROM set. The acronyms were often used in many different ways... Lonley Hearts and Lonley Heiffer were two of them.

ROMs for the Plus and Below

Macintosh 128k ROMs had chip codes which began with the letters L and H ("Lonely Hearts") and were therefore nicknamed appropriately, while the chip codes of the 32-bit-wide CPUs use the letters A, B, C, D ("Ala Baster Can Delabra"). These were the development names for the ROMs and in result the name's initials were given to the ROM.

Print Copyright Trap

Write a little native-code application with a procedure that makes a call to the Print Copyright Trap. I have no idea what that does.

Signature Byte

SigBytes identify the Boot Block. $4C4B signifies that you have a bootable Macintosh disk. “4C4B” translated in ASCII means “LK”. This stands for Larry Kenyon who originally designed the Mac’s File System. From Norton Disk Editor.

Traps

From: MLamont@analog.co.nz (Matthew Lamont)

This is probably a question you have never asked: Just what are the"Miscellaneous Traps" toward the end of Traps.h that have call to DogCow locations?

Those few defines in Traps.h are leftover baggage (these are the odd traps):

_InitDogCow = 0xA89F,
_EnableDogCow = 0xA89F,
_DisableDogCow = 0xA89F,
_Moof = 0xA89F,
HFSPinaforeDispatch = 0xAA52,

0xA89F is really _Unimplemented and 0xAA52 is really _HighLevelFSDispatch. They were possibly left there to keep system builds working - or perhaps to keep the build engineers amused.

Klingon is also one of the identified and supported international languages listed in Script.h.  It was added right after the system software team watched a Star Trek movie. There are other excellent languages listed there as I am told.

A little information: Traps.h is a part of the Universal Interfaces which are a set of files published by Apple. They are for use by programmers. Basically what they do is list all of the Mac toolbox calls. Why are these of any use? Well, you use these files to tell your program where in the ROM (via the address) the call is.