

Open Firmware

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Development Environment

Agenda

Kevin's PowerBook w/o Serial
Connector

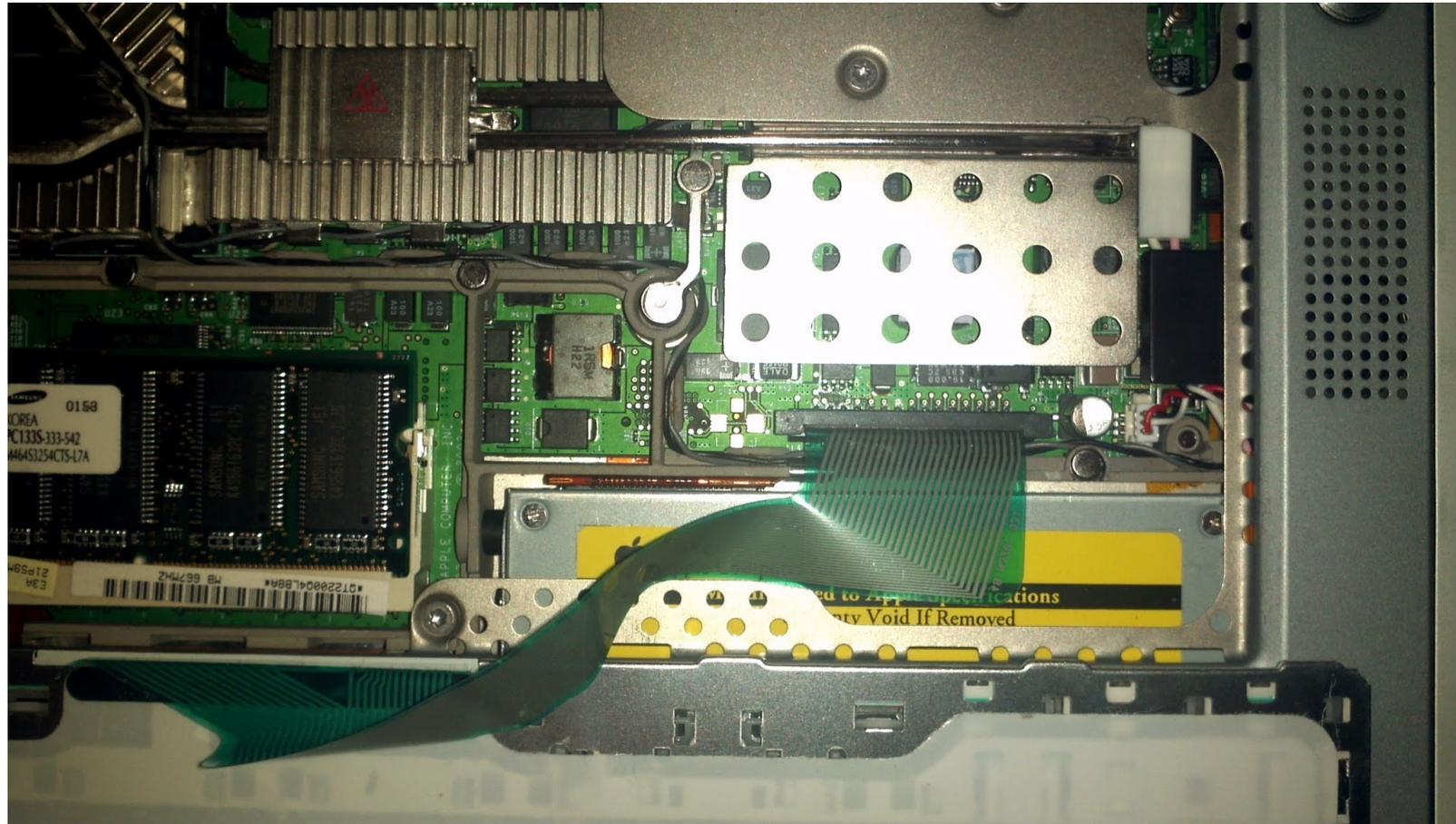
OSX Tools and Applications
Compiling Tools, BootROM &
Tokenizer

Kudos and BootROM Layout
Q&A

Kevin's PowerBook

- Mac OS X 10.4.11 - Tiger
- 667 MHz PowerPC G4
- 768 MB SDRAM
- PowerBook3,4
- BootROM 4.3.7f3 04/17/02 14:45:13

No Serial Connector



OSX Tools

- **gcc** to compile: <http://developer.apple.com>
- Xcode 3.2.6 and iOS SDK 4.3 is 4.1 GB
- 4 hours to find out OSX 10.6.6 is required
- I managed to find an install CD for 10.4.2
- **apt-get** to get tools: <http://www.macports.org/>
- Found MacPorts-1.8.0.pkg for Tiger

MacPorts

- **sudo port -v selfupdate**
- **sudo port install gforth → 0.7.0**
- **sudo port install subversion → 1.6.17**

but Xcode 2.1 has known problems

Version 2.5 is recommended on 10.4

OS X Applications

- Open Office 3.2.1 for PowerPC
- svnX – Subversion Client (SVN)
- BBEdit is great, but need 10.5

- My SVN is on a WinNT file system, so using USB drive to copy BootROMCVS sources

Compiling Tools

- kevin-apperts-powerbook-g4:~/Source/BootROMCVS kevin\$ make
- Fri Aug 26 13:46:21 PDT 2011 Start building Core2001.4.9.401
- Fri Aug 26 13:46:26 PDT 2011 Creating Core2001BootBlock
- Fri Aug 26 13:46:31 PDT 2011 Creating Core2001SystemConfigBlock
- Fri Aug 26 13:46:36 PDT 2011 Creating Core2001TestDataBlock
- Fri Aug 26 13:46:41 PDT 2011 Creating Core2001HwInit
- Fri Aug 26 13:46:47 PDT 2011 Creating TokenizerExecutable
- Fri Aug 26 13:46:51 PDT 2011 Creating TokenizerDictionary

Compiling BootROM

- Fri Aug 26 13:46:58 PDT 2011 Creating Core2001BootROM
- Fri Aug 26 13:46:58 PDT 2011 Stop building Core2001.4.9.401
- Fri Aug 26 13:46:58 PDT 2011 Core2001Rearrange 4.9.401
- Fri Aug 26 13:46:59 PDT 2011 c2MakeDest
Core2001/4.9.401/Core2001.4.9.401
- Fri Aug 26 13:47:44 PDT 2011 Finished building Core2001.4.9.401
- Fri Aug 26 13:47:44 PDT 2011 Incrementing LocalEngineeringVersion
- Fri Aug 26 13:47:45 PDT 2011 DropOfz Core2001.4.9.401.ofz
- Dropping Core2001.4.9.401.ofz to oftech:/eload/dar

Tokenizer

- 1) Make gforth normally and check that it works.
- 2) Copy gforth.exe, gforth.fi, gforth-ditc.exe and gforth-fast.exe to Tools/Win
- 3) Copy gforth.fi to tokenize.fi
- 4) Change gforth's engine/main.c:
char *imagename="gforth.fi"; to
char *imagename="tokenize.fi";
- 5) Make new gforth-fast.exe
- 6) Copy gforth-fast.exe to tokenize.exe
- 7) Copy tokenize.exe to Tools/Win
- 8) Restore gforth's original main.c

Kudos

- This BootROM is brought to you by:
- Hardware Init: Derrick Carty, Al Kossow, Bob Bradley, Cameron Esfahani
- Open Firmware: Dave Carlton, Martin Gross, John Hall, Ron Hocksprung, Jim Huffman, Esmond Lewis, Dennis Ruffer
- Diagnostics: Larry Lam, Todd Rudin, David Zheng, Bill Weigel

BootROM Layout

#	Type	flags	position	offset	size	actual	File type
0	Boot Block	81	A504	0	3F00	3E80	xcoff object
1	Recovery	81	E384	8000	78000	52EE0	
	Hardware Init	0	E384	0		B99C	xcoff object
	Open Firmware	1	19D24	B9A0	7E5C0	4750C	lzss
	Boot Beep	0	F7EA4	E9B20		E4C8	binary
2	Boot Image	81	61264	80000	80000	80000	
	Hardware Init	0	61264	0		B99C	xcoff object
	Open Firmware	1	6CC04	B940	7E5C0	4750C	lzss
	Boot Beep	0	D2D84	71B20		E4C8	binary
3	System Config	87	E1264	3F00	90	3040	xcoff object
6	Drivers	83	E42A4	100000	0	92ABC	FCode driver list

Q & A

Thank You



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