



DigiBarn
computer museum

Apple@30

1976-Apple in the Garage

At the VCF 9.0

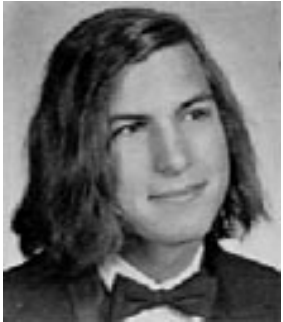
Brought to you by...
the **DigiBarn Computer Museum**
the **Vintage Computer Festival**
the **Computer History Museum**
and a special group of **Apple '76ers**

Want to cook up an
industry?

Its easy!
Just follow
this convenient
recipe...

Apple@30 – the Ingredients

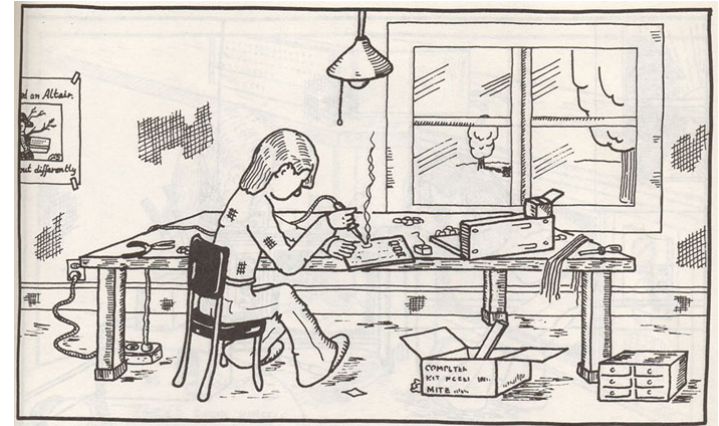
Extraordinary People – some are here today...



Deeply felt
nerdly
passions –
homebrew
computing



...and there were
many more



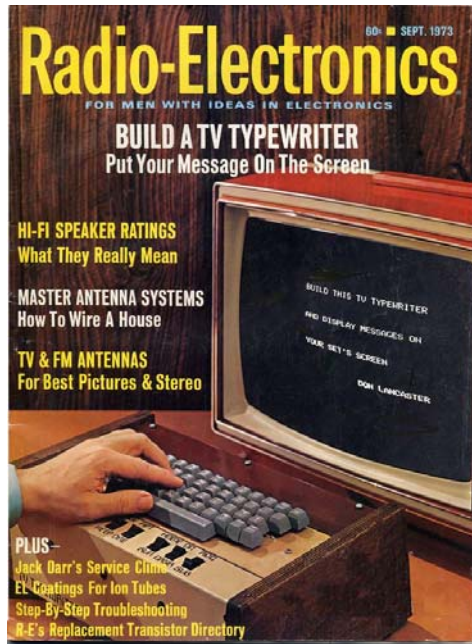
Inspiring Places - Homestead High, HP, Atari, and of course, garages



Apple@30 – the Recipe(s)

AMATEUR COMPUTER USERS GROUP
HOMEBREW COMPUTER CLUB... you name it.

Steve Wozniak 20800 Homestead Road # 36K
Cupertino, Ca. 95014 (tel. 255-6666) have TVT my own
design 65 char/line, 28 lines, 40 chips. Have my own
version of Pong, a video game called breakthrough, a NRZI
reader for cassettes very simple! Working on a 17 chip
TV chess display (includes 3 stored boards); a 30 chip TV
display. Skills: digital design, interfacing, I/O devices,
short on time, have schematics.



Randy Wigginton 806 Logan Ct. Sunnyvale, Ca. 94087
planning to get Altair 8800 to play games.

Tasty recipes -

TV Typewriter, 1973

Altair 8800, 1974

Homebrew club member reports, 1975



Apple@30 – the Kitchen(s)



Steve Jobs parent's **garage**,
Crist Drive, Los Altos CA



Inside the Jobs' garage, 1976



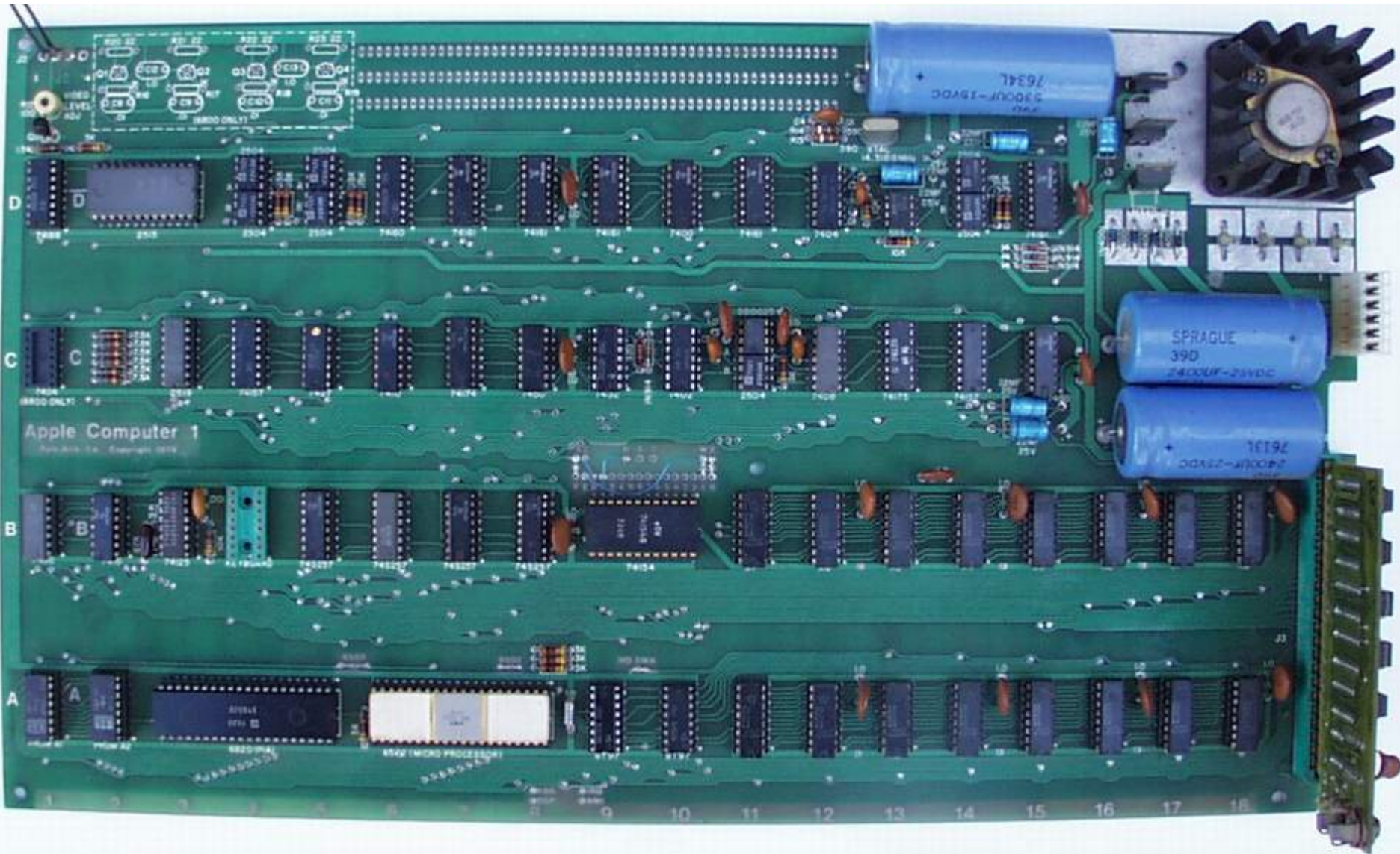
Steve Wozniak's **workbench** 1976

Apple@30 – the Chefs



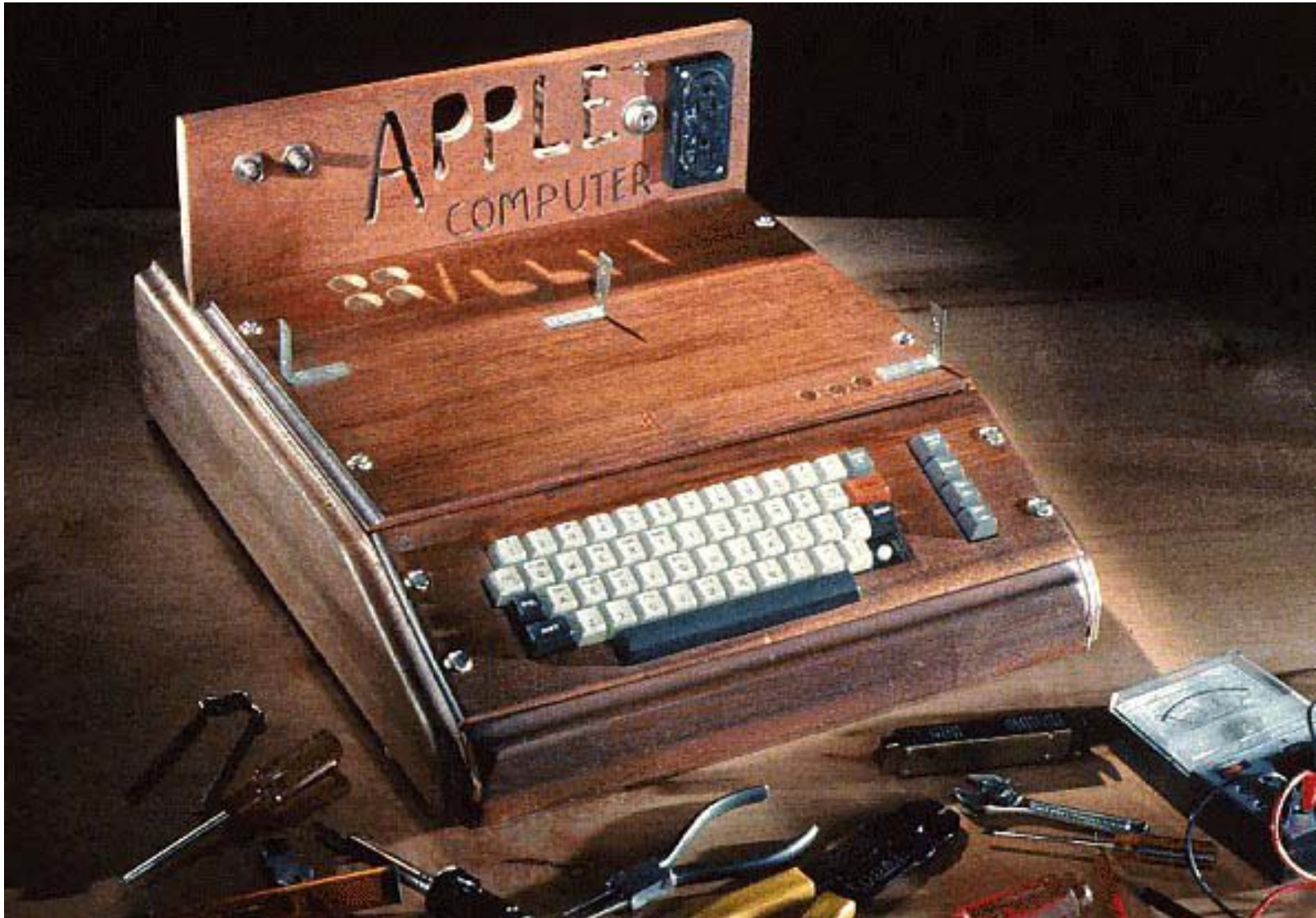
Master chefs Steve Jobs, Steve Wozniak – then and now

Apple@30 – hot out of the oven!



Apple 1

Apple@30 – out of the oven!



Apple 1 in cool wooden case (Smithsonian)

Apple@30 – out of the oven!

```
\
FF00 . FF2F

FF00 :  D0  05  A0  7F  00  12  D0  00
FF08 :  A2  F0  11  D8  00  13  D0  00
FF10 :  DF  F0  13  C9  9B  F0  03  C0
FF18 :  10  0F  A9  DC  20  EF  FF  A0
FF20 :  8D  20  EF  FF  A0  01  88  30
FF28 :  F6  AD  11  D0  10  FB  AD  10

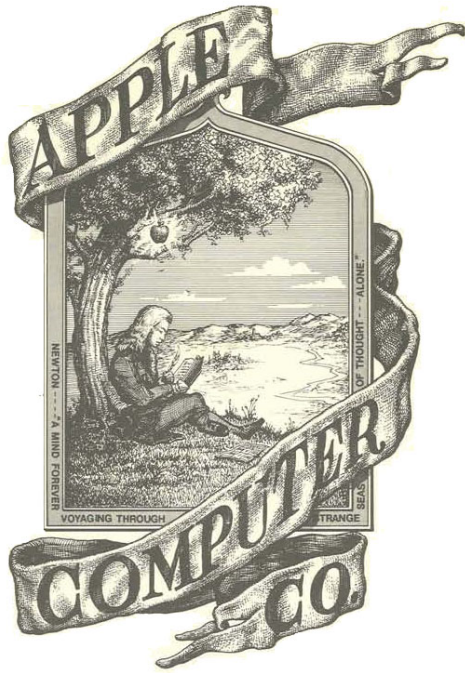
\
300R

TEST OUTPUT TO APPLE-1 DISPLAY.

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHI
IJKLMNOPQRSTUVWXYZ[\]^_`
\
█
```

Apple 1 screen, hex dump, test output

Apple@30 – serving the Apple



Apple's first logo and first trade show

Apple@30 – serving the Apple

Apple Introduces the First Low Cost Microcomputer System with a Video Terminal and 8K Bytes of RAM on a Single PC Card.

The Apple Computer. A truly complete microcomputer system on a single PC board. Based on the MOS Technology 6502 microprocessor, the Apple also has a built-in video terminal and sockets for 8K bytes of on-board RAM memory. With the addition of a keyboard and video monitor, you'll have an extremely powerful computer system that can be used for anything from developing programs to playing games or running BASIC.

Combining the computer, video terminal and dynamic memory on a single board has resulted in a large reduction in chip count, which means more reliability and lowered cost. Since the Apple comes fully assembled, tested & burned-in and has a complete power supply on-board, initial set-up is essentially "hassle free" and you can be running within minutes. At \$666.66 (including 4K bytes RAM) it opens many new possibilities for users and systems manufacturers.

You Don't Need an Expensive Teletype.

Using the built-in video terminal and keyboard interface, you

avoid all the expense, noise and maintenance associated with a teletype. And the Apple video terminal is six times faster than a teletype, which means more throughput and less waiting. The Apple connects directly to a video monitor (or home TV with an inexpensive RF modulator) and displays 960 easy to read characters in 24 rows of 40 characters per line with automatic scrolling. The video display section contains its own 1K bytes of memory, so all the RAM memory is available for user programs. And the Keyboard Interface lets you use almost any ASCII-encoded keyboard.

The Apple Computer makes it possible for many people with limited budgets to step up to a video terminal as an I/O device for their computer.

No More Switches, No More Lights.

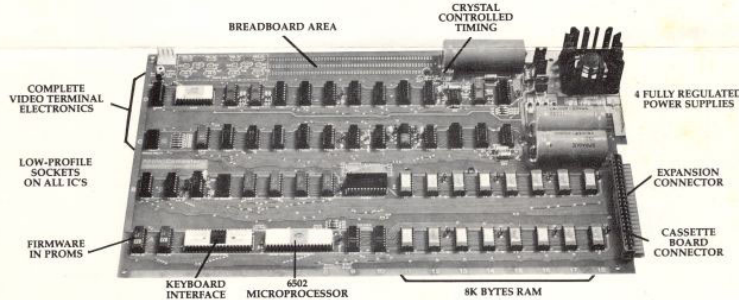
Compared to switches and LED's, a video terminal can display vast amounts of information simultaneously. The Apple video terminal can display the contents of 192 memory locations at once on the screen. And the firmware in PROMS enables you to enter,

display and debug programs (all in hex) from the keyboard, rendering a front panel unnecessary. The firmware also allows your programs to print characters on the display, and since you'll be looking at letters and numbers instead of just LED's, the door is open to all kinds of alphanumeric software (i.e., Games and BASIC).

8K Bytes RAM in 16 Chips!

The Apple Computer uses the new 16-pin 4K dynamic memory chips. They are faster and take 1/4 the space and power of even the low power 2102's (the memory chip that everyone else uses). That means 8K bytes in sixteen chips. It also means no more 28 amp power supplies.

The system is fully expandable to 65K via an edge connector which carries both the address and data busses, power supplies and all timing signals. All dynamic memory refreshing for both on and off-board memory is done automatically. Also, the Apple Computer can be upgraded to use the 16K chips when they become available. That's 32K bytes on-board RAM in 16 IC's — the equivalent of 256 2102's!



Apple Computer Company • 770 Welch Rd., Palo Alto, CA 94304 • (415) 326-4248

A Little Cassette Board That Works!

Unlike many other cassette boards on the marketplace, ours works every time. It plugs directly into the upright connector on the main board and stands only 2" tall. And since it is very fast (1500 bits per second), you can read or write 4K bytes in about 20 seconds. All timing is done in software, which results in crystal-controlled accuracy and uniformity from unit to unit.

Unlike some other cassette interfaces which require an expensive tape recorder, the Apple Cassette Interface works reliably with almost any audio-grade cassette recorder.

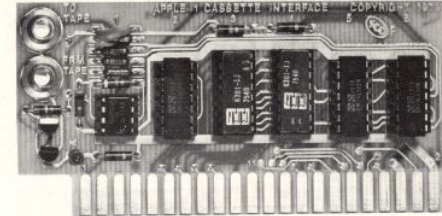
Software:

A tape of APPLE BASIC is included free with the Cassette Interface. Apple Basic features immediate error messages and fast execution, and lets you program in a higher level language immediately and without added cost. Also available now are a dis-assembler and many games, with many software packages, (including a macro assembler) in the works. And since our philosophy is to provide software for our machines free or at minimal cost, you won't be continually paying for access to this growing software library.

The Apple Computer is in stock at almost all major computer stores. (If your local computer store doesn't carry our products, encourage them or write us direct). Dealer inquiries invited.

Byte into an Apple

The Apple Cassette Interface (shown actual size)



Prices

Apple-1 includes 4K bytes RAM	\$666.66
Apple Cassette Interface BASIC tape included	\$ 75.00
Apple 4K Byte RAM expansion memory	\$120.00

All Apple products are assembled, tested, and guaranteed to work.



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First ad for the Apple 1

Apple@30 – today's feast

Today's Itinerary

1:00 Introduction of the event by host Sellam Ismail

1:05 Bruce Damer's slide show about Apple in 1976 and our panelists

1:20 Panelists weigh in on a freeform discussion of Apple... thirty years ago

And in whatever order makes sense at the time:

-Vince Briel shows the Apple 1 replica in operation

-Linda Blum shows Jef Raskin's original Apple 1

2:10 We open for stories, comments, questions

2:30 We make a valiant attempt to wind it down

2:35 A lovely cake cutting happens with the whole group in a photo op

2:45 People mill about and general confusion prevails

3:00 Interviews

9:00pm Woz finally finishes talking to people & signing their iWoz books & Apple][covers!

Apple@30 – Take a bite!

Cake cutting ceremony!



Apple @ 30



Apple @ 30

Apple@30

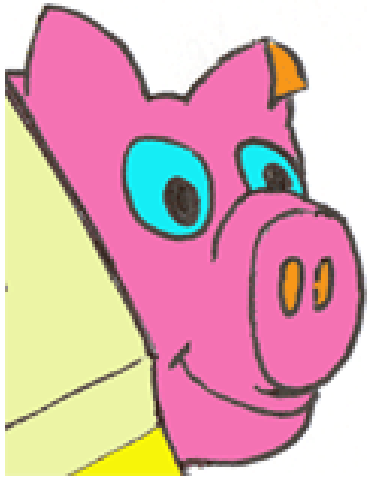
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Allan Lundell/Virtual World Studios
The Raskin Family
Vince Briel
Bob Lash
Michael Holley
Tom Munnecke
Apple II History site
Homestead High School
Hewlett-Packard
Atari Corporation
Smithsonian
Ed Thelen
Stan Veit
Safeway, Soquel, CA

Digibarn Computer Museum
Radio Electronics
Popular Electronics
Robert X. Cringely
And many others!



Apple@30 – Oink!



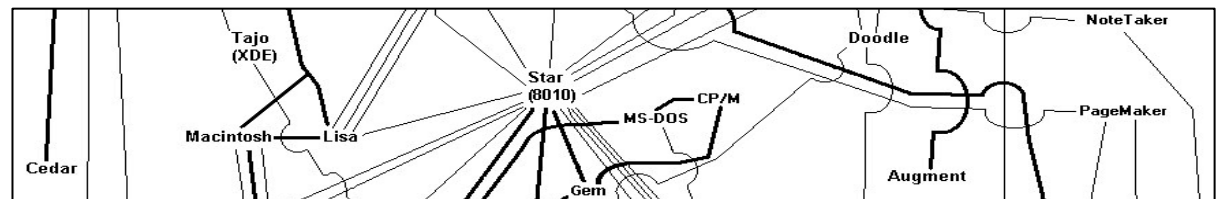
come visit us at the...

DigiBarn Computer Museum

Visit us in person or online at

www.digibarn.com

bdamer@digitalspace.com



Apple@30 – Now on to the show!



Steve Wozniak
well.. he's the Woz!



Daniel Kottke
assembled Apple 1s
in the garage &
more!



Randy Wigginton
Apple employee #6
Met Woz at the Club
and then went on
to an illustrious
career at Apple
doing many, many
things.



Chris Espinosa,
who at age 15
joined Apple in
1976 in the
garage and is
still there today
(at Apple that
is)!

Mystery
guest?

The Panel!