Vintage Computer Festival
Computer History Museum
August 1, 2025

Kevin Appert & Dave Jaffe


Computer History Museum

Kevin’s Photos


AUCTIO
RARE. RE
CHM

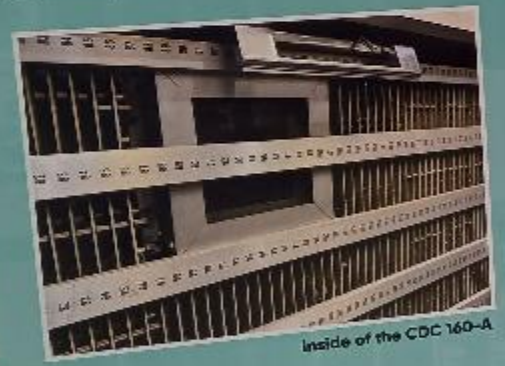

CONTROL DATA


DATA
T60 A

CONTROL DATA CORPORATION

160-A

The CDC 1604, designed by Seymour Cray, had a problem where it sat idle waiting for slow input and output devices that used paper tape and punched cards. To solve this, Seymour designed the CDC 160, a smaller desk sized computer that used the same kind of logic and memory as the 1604. CDC eventually sold the 160 as its own product in 1960.



Inside of the CDC 160-A

There are no integrated circuits in the computer, the entire machine is comprised of discreet components, assembled into cards like this. The computer had 2,700 transistors and 22,000 diodes. For comparison, a MOS 6502 has 3,510.

The CDC 160 comes with a paper tape punch and separate reader for saving and reading programs. This 160-A also came with a 1609 card punch and reader with FORTRAN on punched cards. At launch in 1960, it would have cost $47,000, or $1,175 a month.

This CDC 160A was in use at Argon National Laboratory.

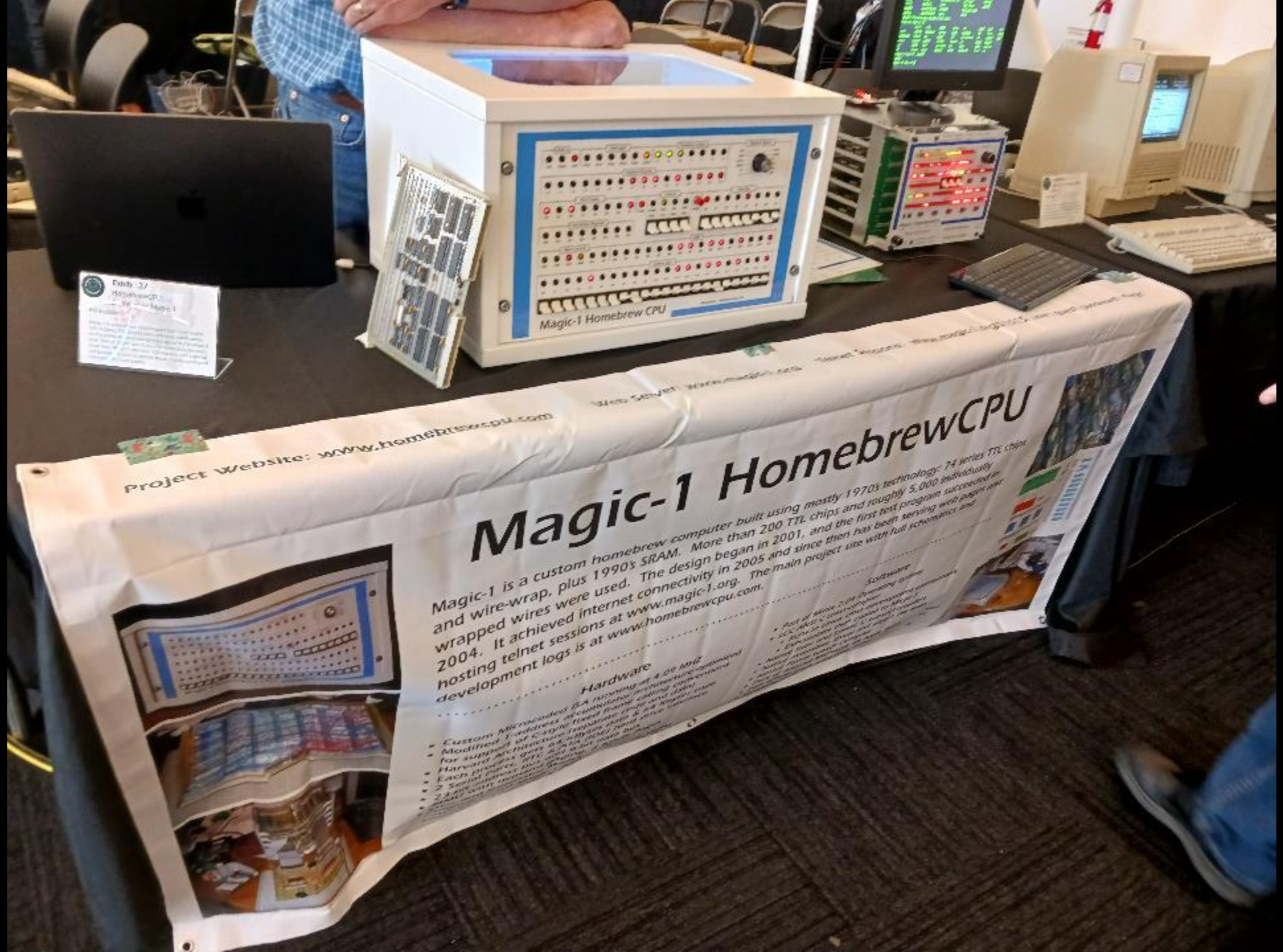
An anecdote about the CDC 160 was that Seymour Cray designed it over a three day weekend when he was home sick. What actually happened was he went home for a day or two sick and took the "Big Character" prototype that CDC used in developing the CDC 1604, cleaned it up and that became the 160.

The CDC 160-A was a slight redesign of the 160, adding bank switching and support for more memory, which was a complaint from customers. It could address up to 32K words of memory, and connect to a new multiply/divide unit.

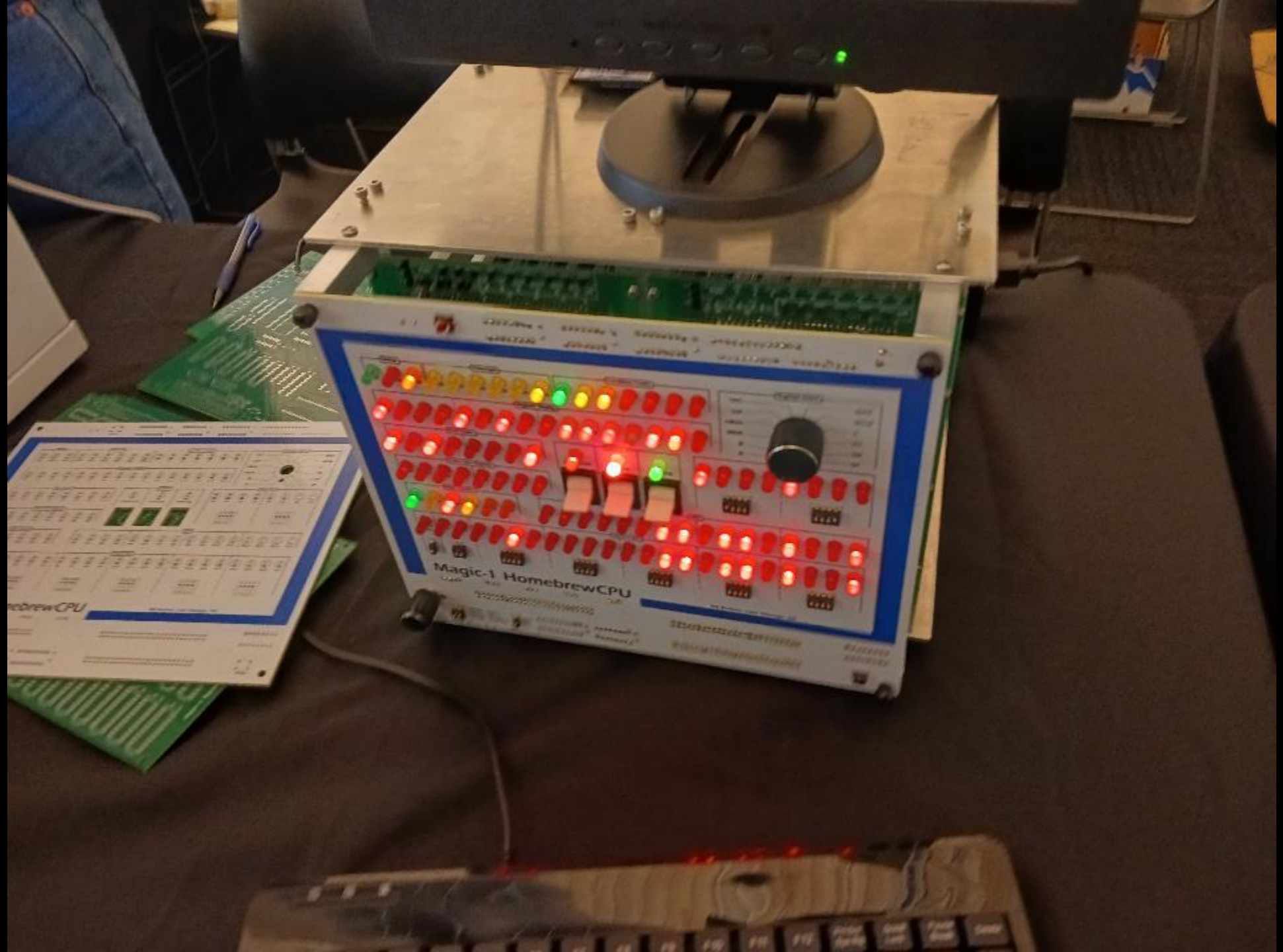
The CDC 160 originally had an optional console that was a modified IBM typewriter. Soroban Engineering was the company that modified it, calling it the Computerite. With the CDC 161, it cost $10,500, or $1,500 a month. The typewriter that belongs to this 160 wasn't able to be repaired, so instead a serial terminal was adapted to be used.

The CDC 160 used an IEE Projection system for its display. They function similar to a slide projector, using small films with characters on them, shining a light through the film and onto a plastic screen for the operator to view.

the computer museum of central texas


Magic-1 Homebrew CPU
Project Website: www.homebrewcpu.com
Magic-1 HomebrewCPU
Magic-1 is a custom homebrew computer built using mostly 1970s technology: 74 series TTL chips and wire-wrap, plus 1990s SRAM. More than 200 TTL chips and roughly 5,000 individually wrapped wires were used. The design began in 2001, and the first test program succeeded in 2004. It achieved internet connectivity in 2005 and since then has been serving web pages and hosting telnet sessions at www.magic-1.org. The main project site with full schematics and development logs is at www.homebrewcpu.com.
Hardware
Software


Magic-1 Homebrew CPU
Web Server: www.magic-1.org
Telnet Sessions: www.magic-1.org:51515


Magic-1 HomebrewCPU


USING ASSEMBLY LANGUAGE
QUE
Sterling FORTH
Frame your
Vintage
Computer
in Period books
from


Computer History Museum
Remembering Arnold Rosenbloom from Apollo's descents To computing descendants
Frame your
STATISTICAL EXPLORATIONS

SECOND EDITION
STARTING FORTH
LEO BRODIE / FORTH, INC.
MICROSOFT EXCEL
ZEITZ


PORT & COMPANY
The Oregon Tra
You have died of dysentery,
measles, cholera, typhoid,
exhaustion, fever, snakebite,
a broken leg, and drowning


1600
Q W E R T Y U I O P
A S D F G H J K L
Z X C V B N M

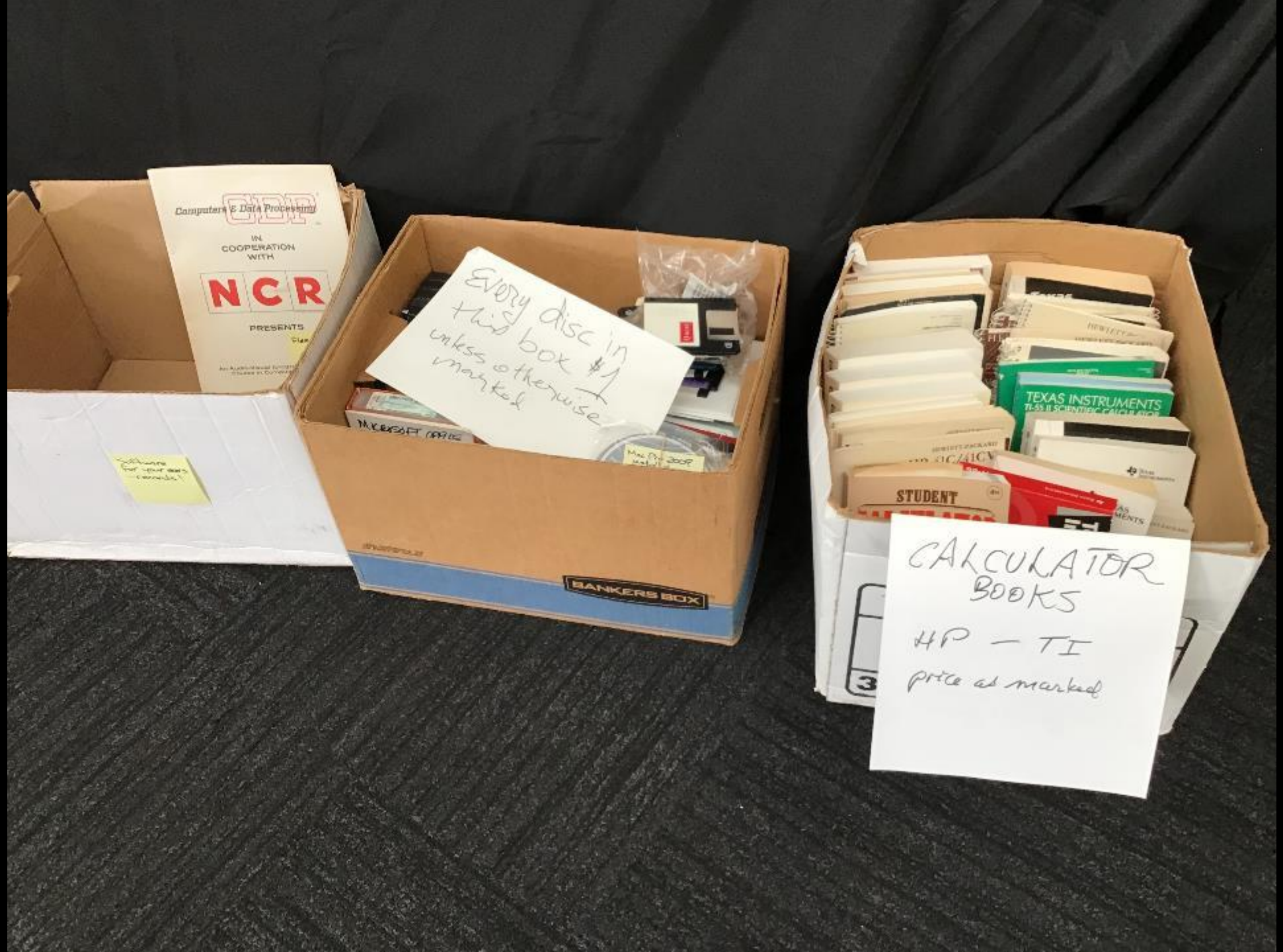

intel
8080
50 Years and counting...
8-bit Micro-Processor
(Intel 8080 April 1974 $360)
(Intel 8080A 1975)
(Intel 8085 1976)

Dave’s Photos


Kid's Passport!

LINUX
LINUX Network
Operating Systems
IBM
See MIPS Run
HyperTalk Handbook
Mac OS X
macOS High Sierra
COMMODORE
16 Bit Microprocessor Architecture
Palm webOS
THE EXECUTIVE USE OF COMPUTERS
Exhibit 44
OS/2 WARP


WINDOWS NT SHELL SCRIPTING
INTERNET BUSINESS
Windows Vista
Windows 95 Resource Kit
Hyperfall Handbook
Mac OS X
Mac OS X
Mac OS X
STUPID
COMMODORE 64
THE COMPUTER


Computers & Data Processing
IN COOPERATION WITH
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TEXAS INSTRUMENTS
STUDENT
CALCULATOR BOOKS
HP — TI
price as marked

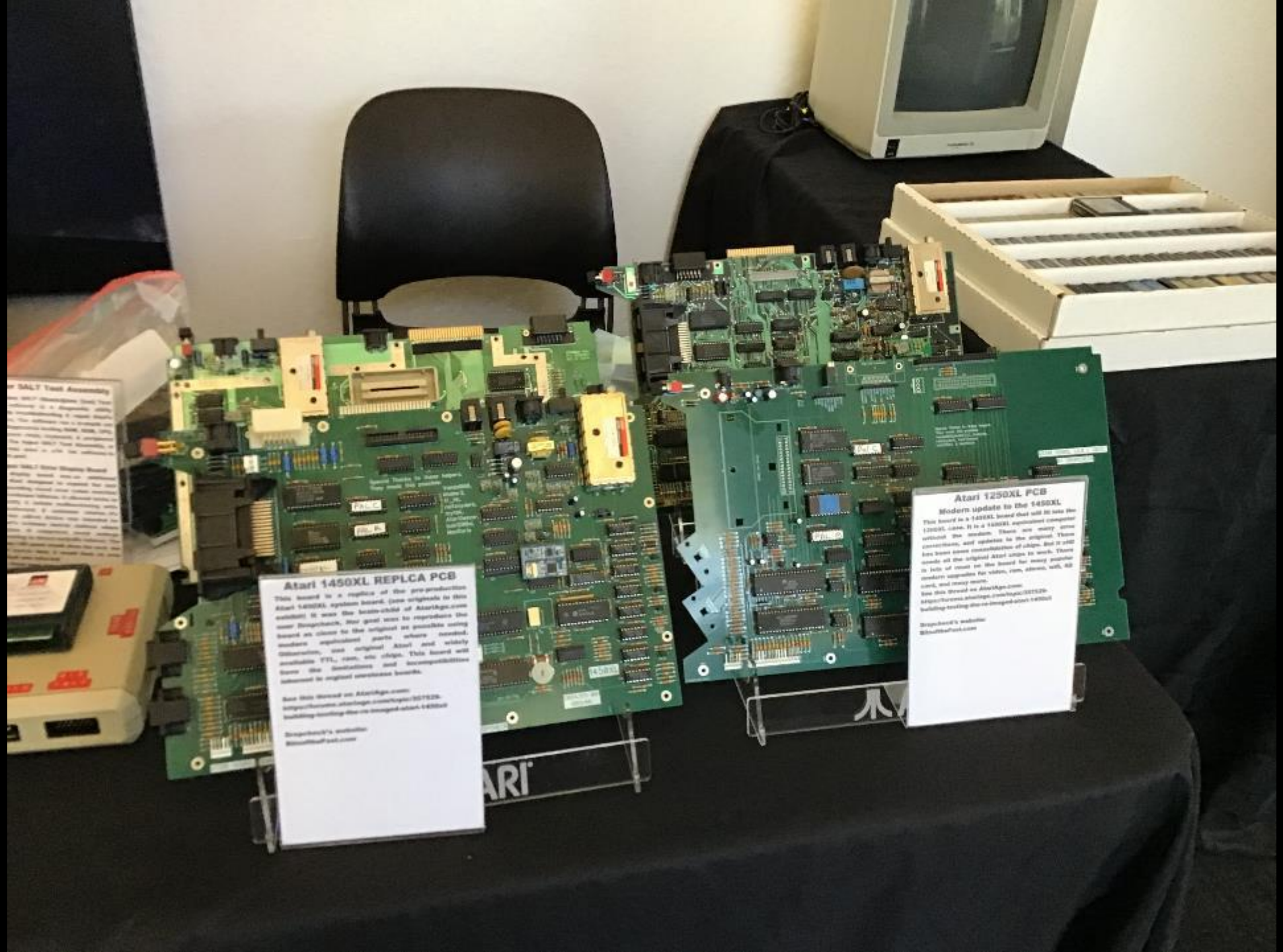

SRI International
Salutes Its Many
Competing Pioneers
Turbo C++ Bible
Tcl and Tk
The Data Compression Book
Programming in
Objective-C
Neural Nets
Basic
BASIC-English
Dictionary
Apple, PET
& TRS-80
USING ASSEMBLY
LANGUAGE


ATARI
ATARI
ATARI
ATARI 600
HOME COMPUTER
ATARI
ATARI
ATARI
ATARI


Atari 1200 Prototype
(October 82 Pilot)
ATARI 1200


STORAGE BOX
LETTER / LEGAL
SIZE FILES
ATARI
SONY
ATARI


SLCC
San Leandro Computer Club Since 1983
ATARI ATARI ATARI ATARI ATARI ATARI


Atari 1450XL REPLCA PCB
Atari 1250XL PCB
Modern update to the 1450XL


The Museum of Art and Digital Entertainment
BYTE
COMPUTE


ATARI


My Computer
AOL Instant Messeng...
Network Neighborhood
DALMON Tools
Inbox
FileZilla
Internet Explorer
Netscape Communicator
Recycle Bin
Acrobat Reader 4.0
Start
THE PODBTPC
ATARI
HEWLETT PACKARD 200LX


Project IVY
Katarina Melki
katarinamelki.net\ivy


JUNIOR
MERITUM

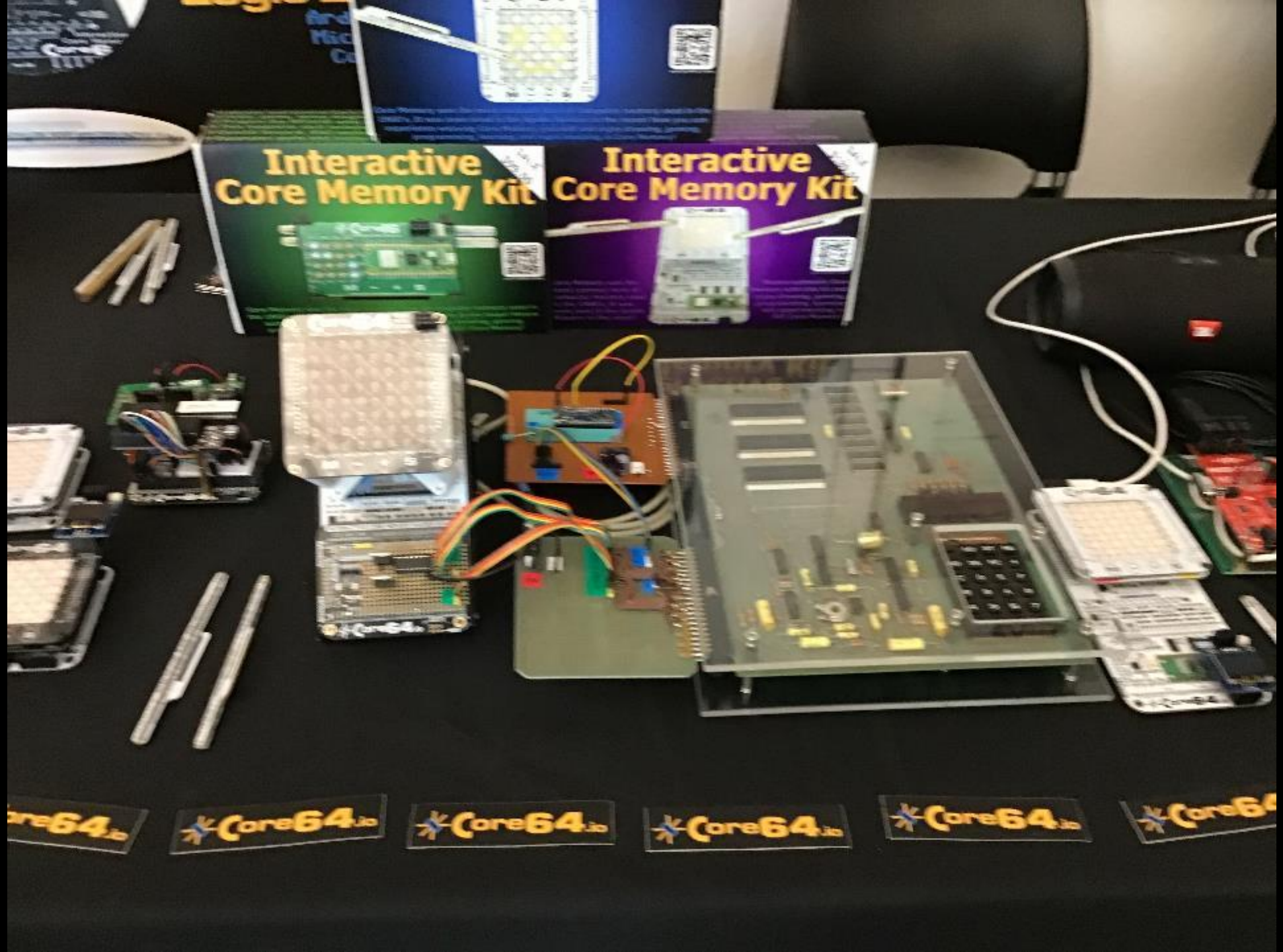

Interactive
Core Memory Kit
Interactive
Core Memory Kit
Core64.io
Core64.io
Core64.io
Core64.io
Core64.io


Exhibit 43
Rare and Not So Rare Micros
HEBDOGICIEL
ALICE 90 : TOUT FAUX !
Alice 90


Paint
AMIGA
Adventure Construction Set
DISCOVERY
AN INTERACTIVE EDUCATIONAL SPACE ADVENTURE
DISCOVERY
GAME DISK
Exhibit 46
Tube Time's First Computer
Tube Time
INSTANT
Hand San

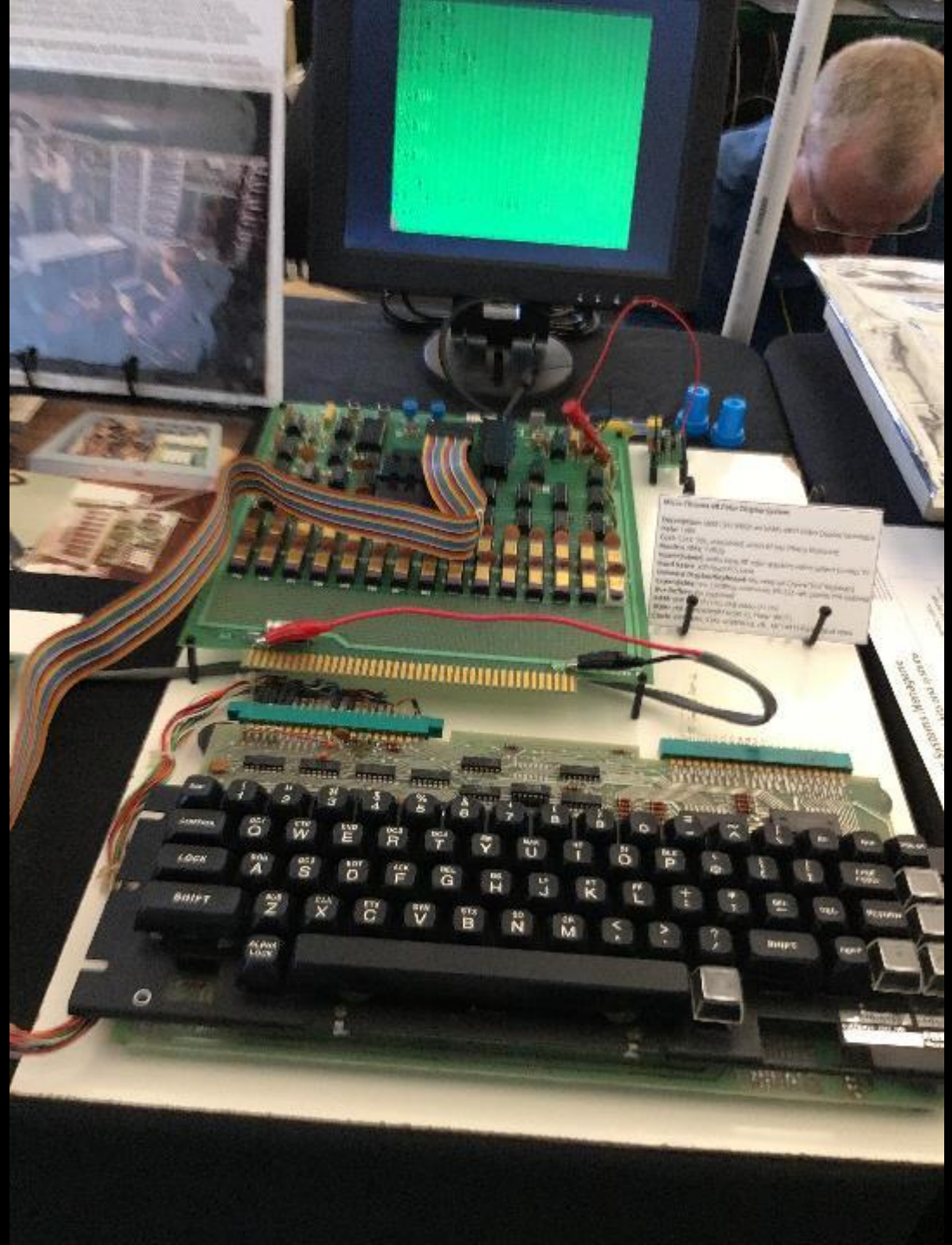

E&L Instruments MMD-1
Single Board Computer/Trainer
(Circa 1976 $???)
Sol Terminal Computer
RESET
Exhibit 45


SECONDS LEFT
Sol Terminal Computer
Processor Technology


clone with AI Card
APPLE-1
Computer
POWER


Tested & Fully Operational
$900
IMSAI 8080
CROMEMCO
DAZZLER
GRAPHICS
VIZIO
DYNEX
JEFF'S
VINTAGE
ELECTRONICS
ATEN


SIIG SoundWave 5.1 PCI
SIIG SoundWave 5.1 PCI
SIIG SoundWave 5.1 PCI
$20
Franklin ACE
Dual I/O Interface
$5
$100
Assembling
and Using Your . . .




an apple sounds good
Hi

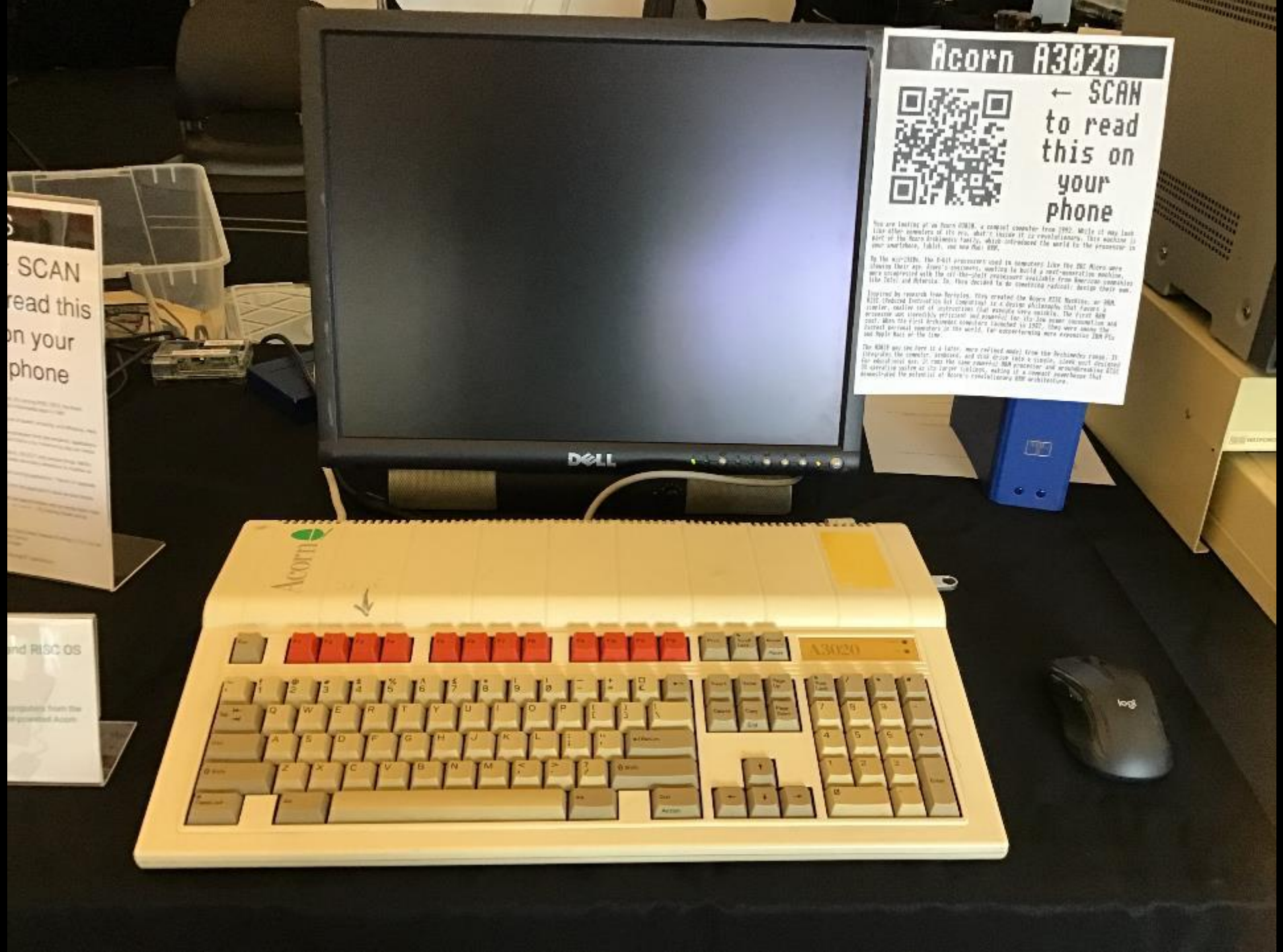

A-EON
a-eon.com
AMIGA
/040
CALIFORNIA 2025
FUTURE
WALL
A1222Plus
A1200NG
Addams Family

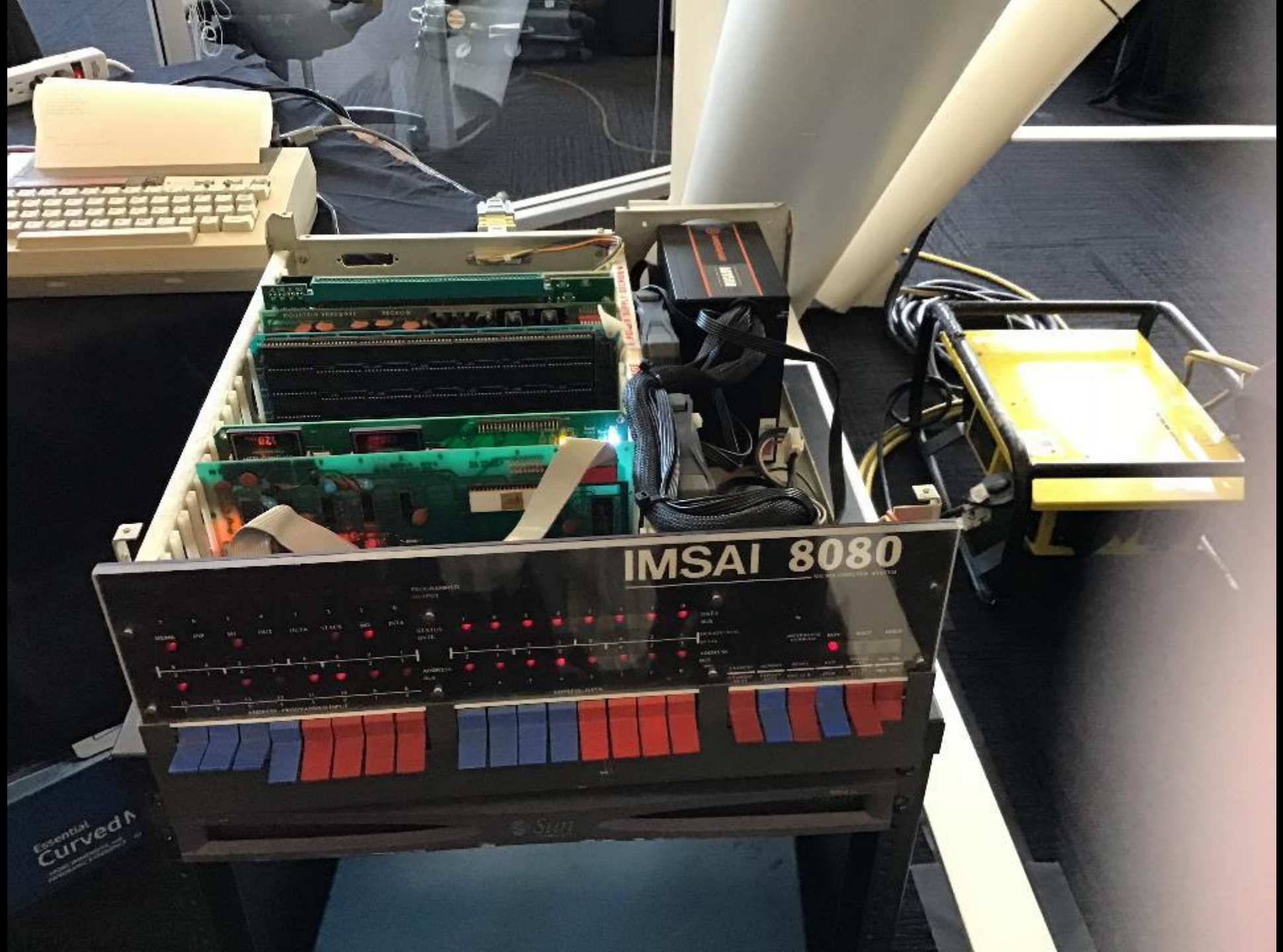

commodore
CBM
computer
commodore
PET
2001 Series
professional
computer


F D T
RABBIT HOLE
COMPUTING

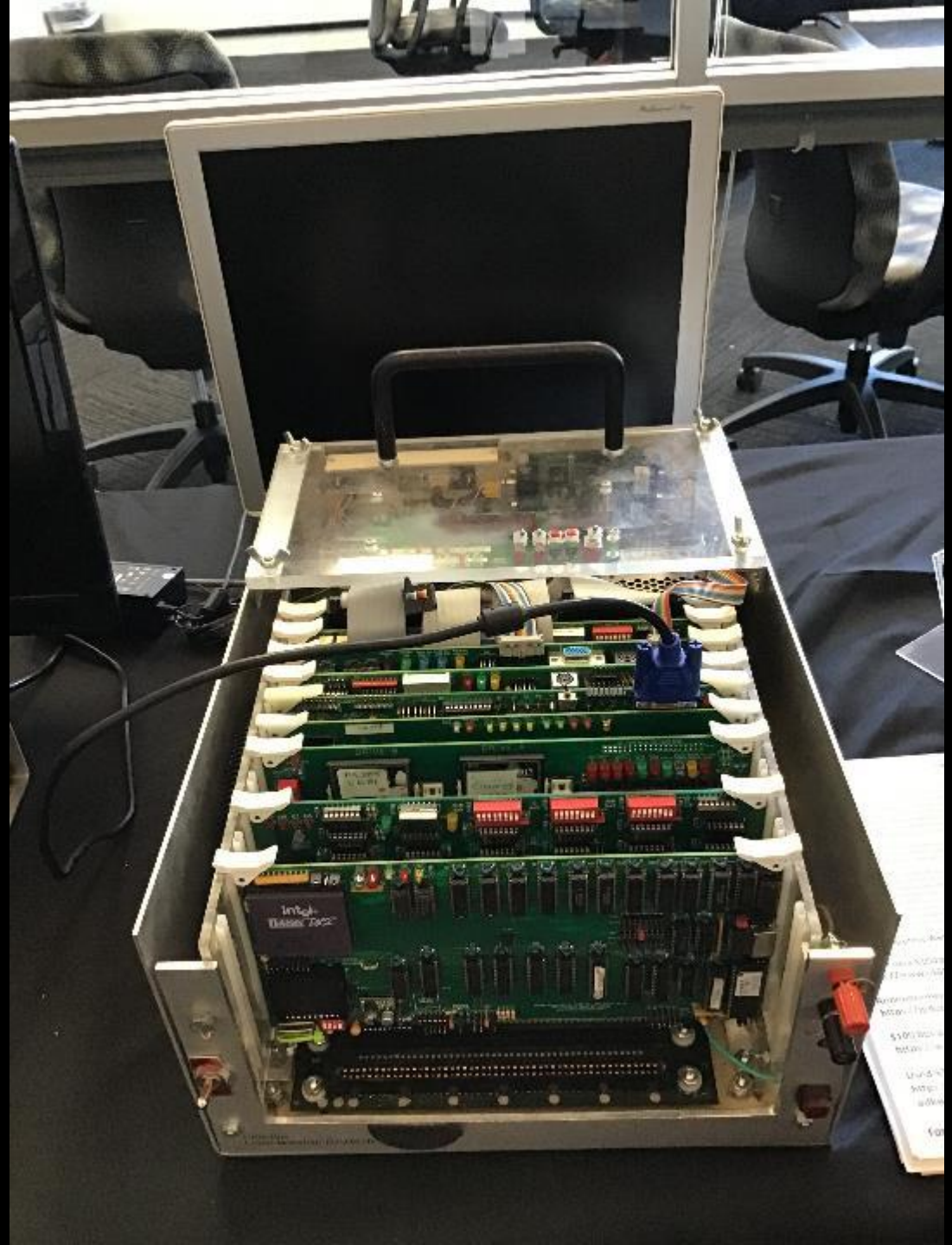

AMIGA
Amiga 500
Commodore
ViewSonic
AMIGA
AMIGA

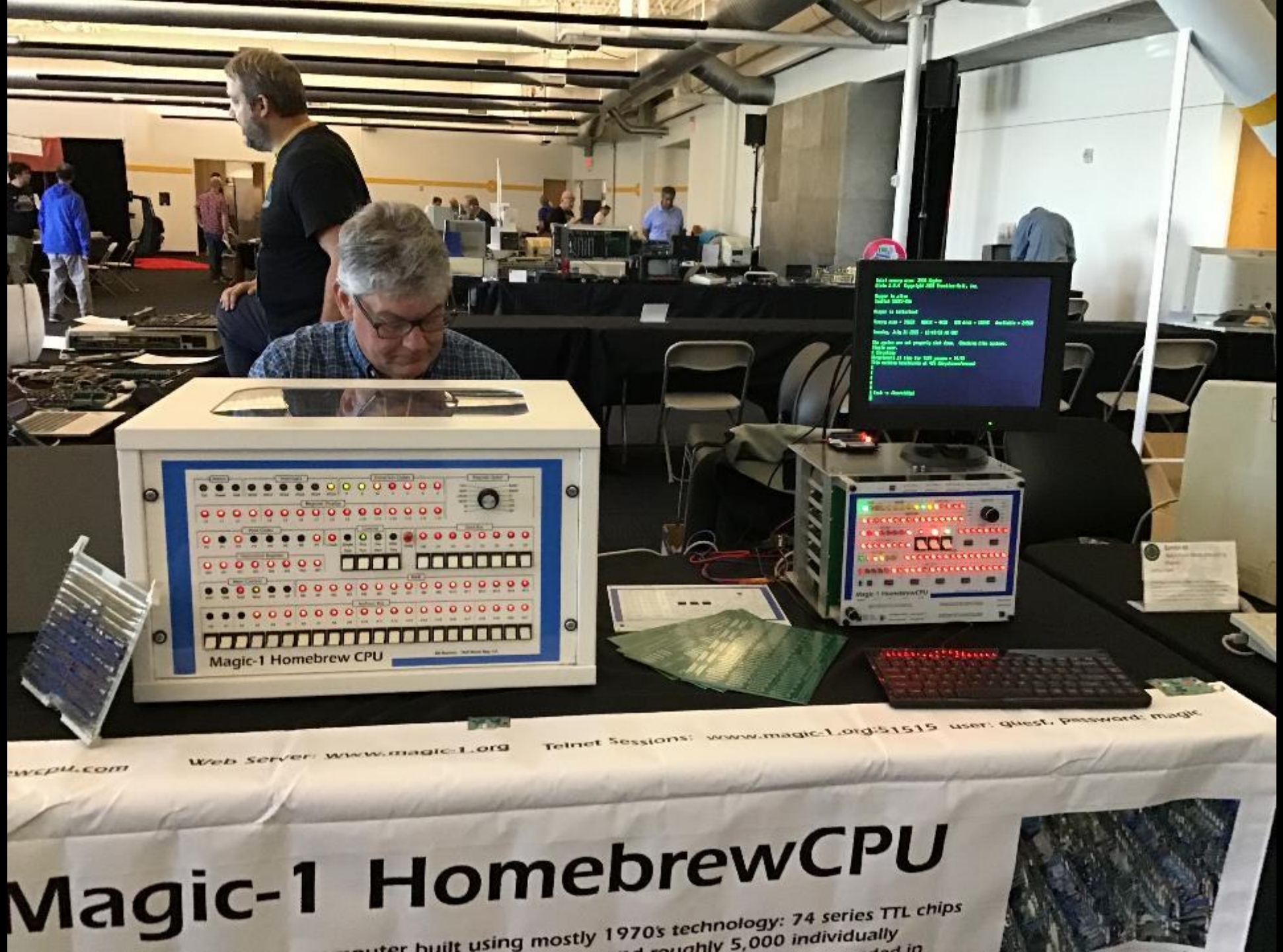

SymbOS
C Compiler
monitor ///
CPC 464
AMSTRAD
CPC 464


Acorn A3020
← SCAN to read this on your phone
SCAN
read this
on your
phone
DELL
Acorn
A3020


IMSAI 8080

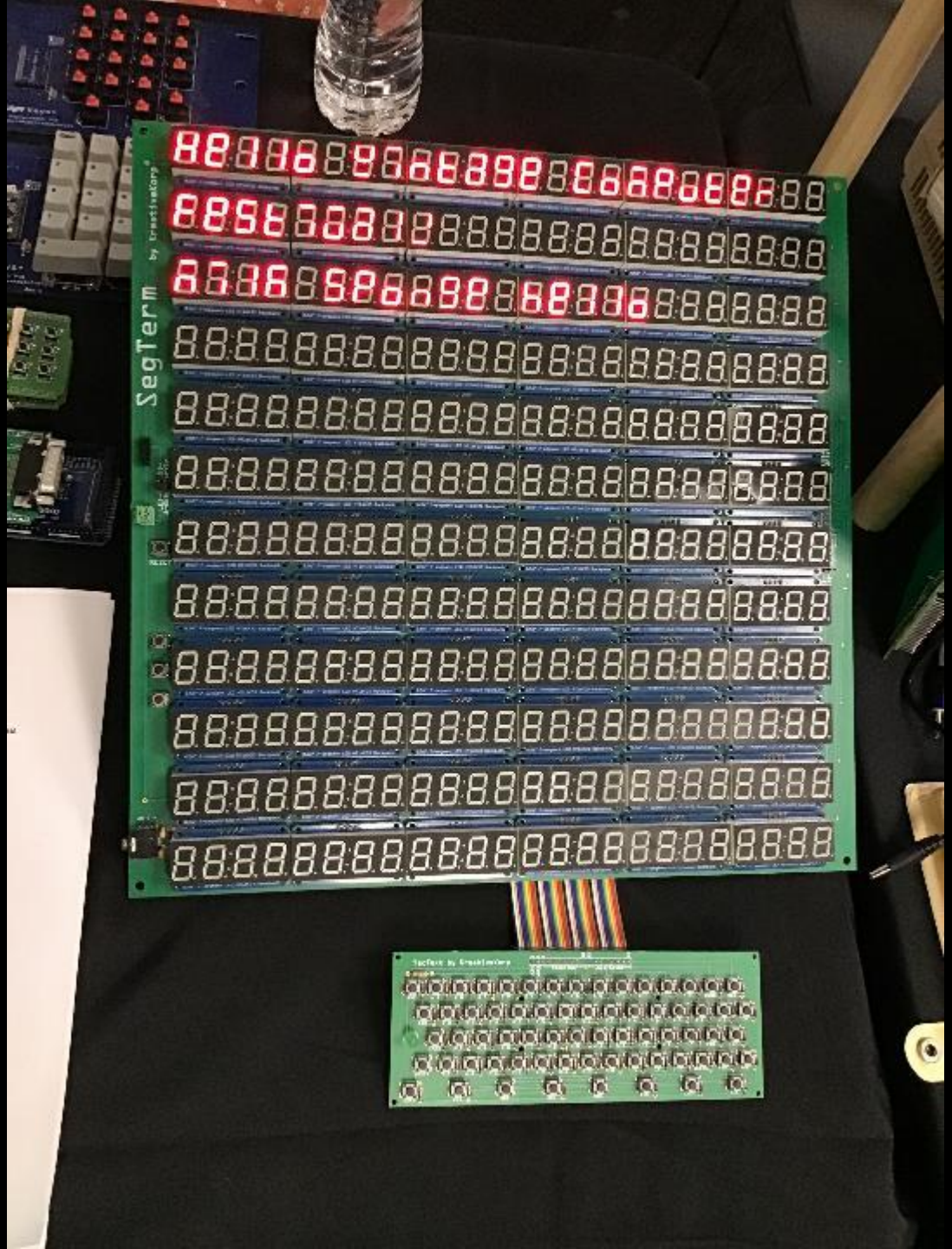

acer




Magic-1 Homebrew CPU
Web Server: www.magic-1.org
Telnet Sessions: www.magic-1.org:51515 user: guest, password: magic
Magic-1 HomebrewCPU

Scan to order –
posters or shirts

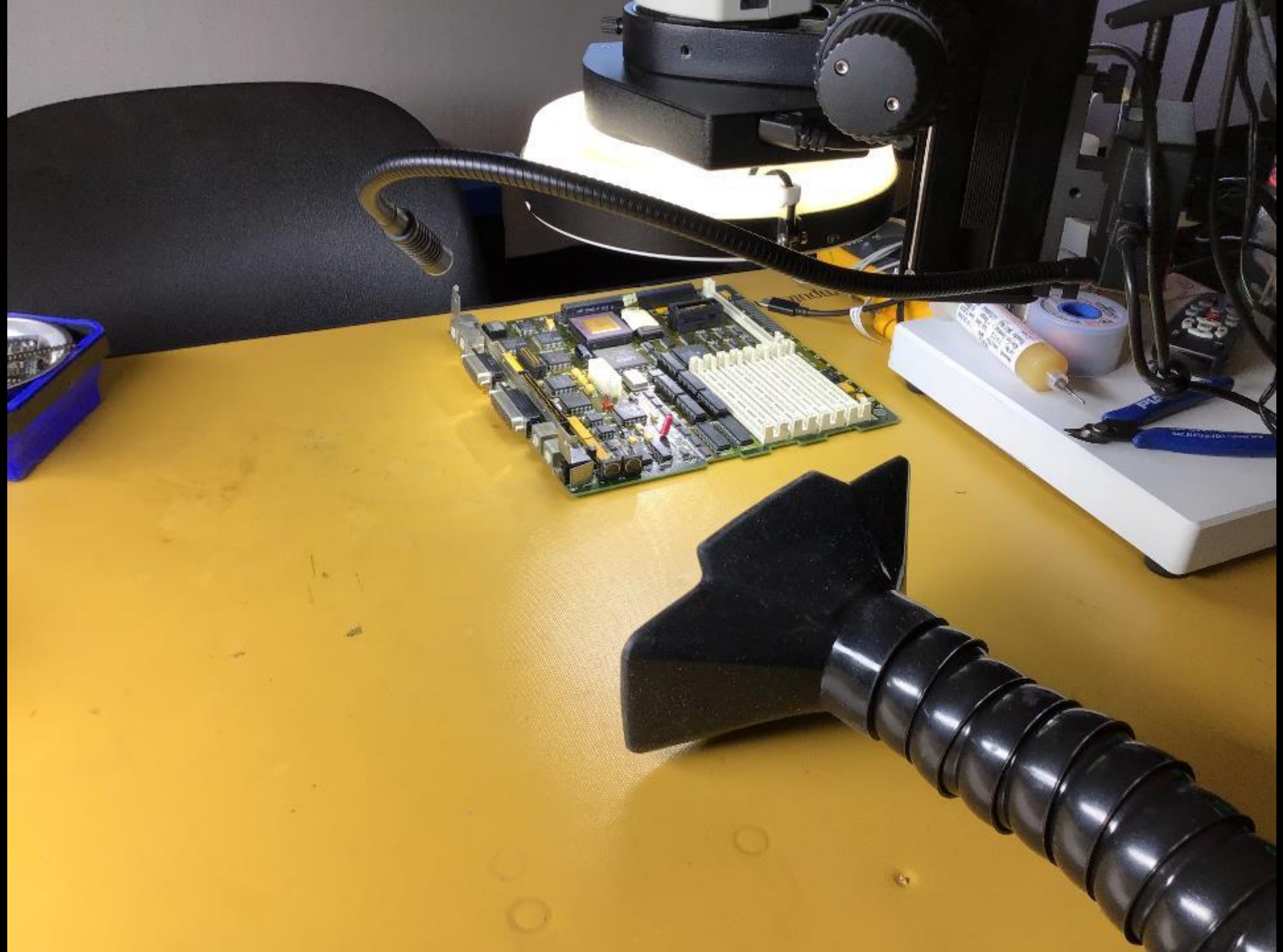
HOMEBREW
COMPUTER CLUB


SegTerm
by KrastinaKorp


DATA I/O
System 19
ADDRESS
DATA
TEST
PROG
VER
COMPLETE
BLOCK LIMITS
EDIT
SELECT
DEVICE DATA
KEYBD
START
DELETE REVIEW
INSERT ENTER
DEVICE
PROG
VER
LOAD
7 8 9 A
4 5 6 B
1 2 3 C
0 F E D
UniPak
DATA I/O
PIN 1
1
2
3
4
5
6
7


ESC
TAB
CTRL
CAPS LOCK
SHIFT
BELL G
RETURN
SHIFT
DEL


PanaSync
Panasonic
133
Windows 95 Build




profile
READY
The Macintosh XL - Big Brother
ANIMAL IN HEAT
Exhibit by Xiang


ARMATRON

AEG PRESENTS BY ARRANGEMENT WITH SOLO

AGAINST THE ODDS

BLONDIE

+SPECIAL GUEST

JOHNNY MARR

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S 24 - CARDIFF - MP ARENA	M 2 - LIVERPOOL - M&S BANK ARENA
TU 26 - LONDON - THE O2	W 4 - LEEDS - FD ARENA
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F 29 - HULL - BONUS ARENA	SA 7 - BIRMINGHAM - UTILITA ARENA

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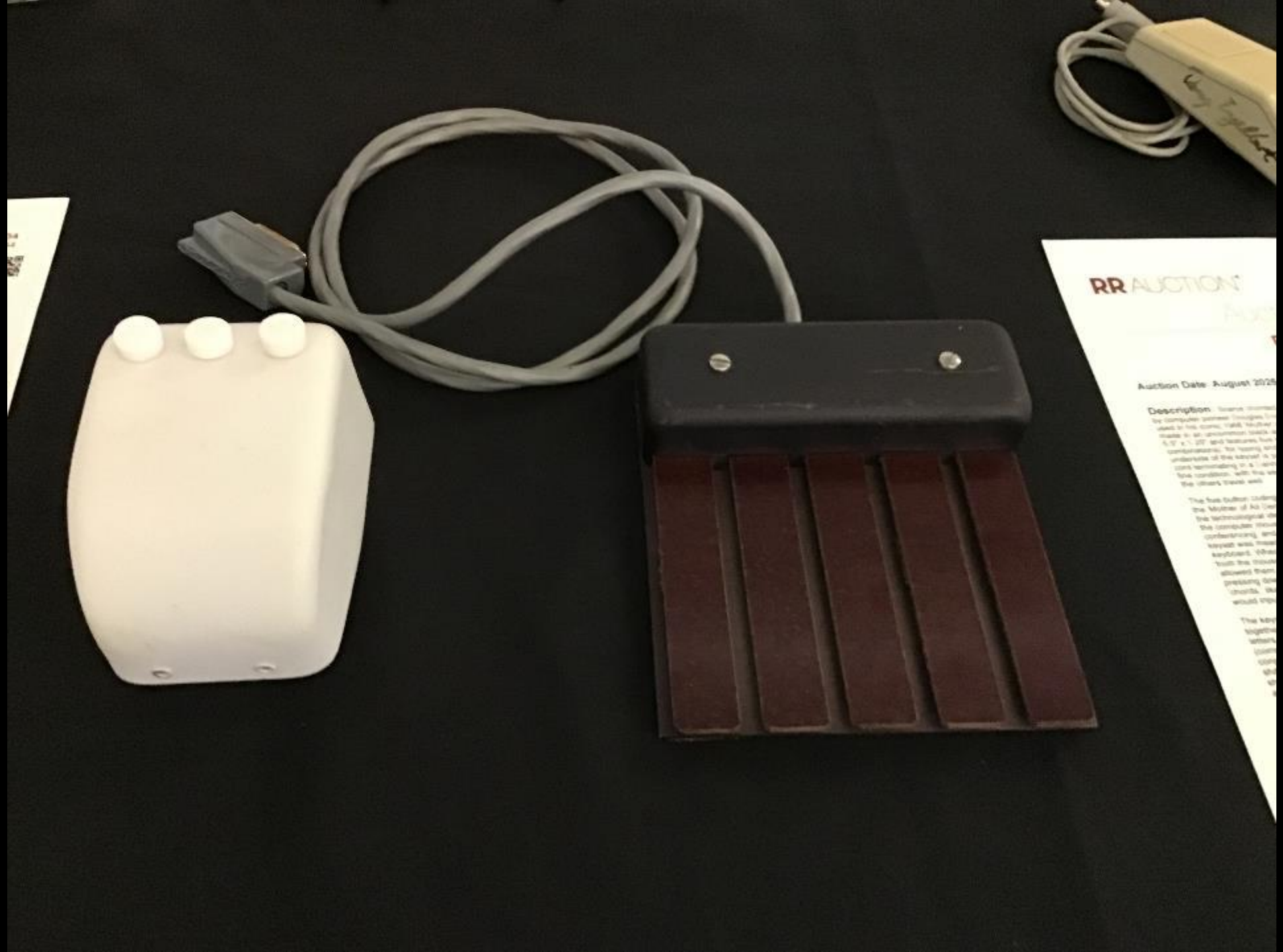

RR AUCTION

intel

8080

50 Years and counting...

8-bit Micro-Processor

(Intel 8080 April 1974 $360)

(Intel 8080A 1975)

(Intel 8085 1976)

Specifications:

- 8-bit NMOS Microprocessor
- 4500 - 6000 Transistors (6 Micron)
- Clock Frequency: 2 MHz to 3.125 MHz
- 78 Instructions
- Instruction Set Includes:
  - Data Transfer Group
    - move data between registers or between memory and registers
  - Arithmetic Group
    - add , subtract, increment or decrement data in registers or in memory
  - Logical Group
    - AND , OR , XOR , compare, rotate or complement data in registers or in memory
  - Branch Group
    - conditional and unconditional jump instructions, subroutine call instructions and return instructions
  - Stack, I/O and Machine Control Group
- 64 kB of addressable memory
- 6 General Purpose Registers and an Accumulator
- 16-Bit Program Counter and Stack Pointer
- Decimal, Binary, and Double Precision Arithmetic
- Ability to Provide Priority Vectored Interrupts
- 512 Directly Addressed I/O Ports
- Standard Operating Temperature Range of 0°C to 70°C
- 40-pin DIP Package (White/Grey Ceramic, Plastic)

From CPU to software, the 8080 Microcomputer is here.

Intel's new 8080 n-channel microcomputer is here – incredibly easy to interface, simple to program and with up to 100 times the performance of p-channel MOS microcomputers.

Best of all, the 8080 is real – in production at Intel and available in volume quantities today. It's also available through distributors along with a growing line of peripheral circuits and a new version of the Intellec 8, a program and hardware development system for the 8080, all supported with software packages, design documentation and manuals, and backed by more than 100 man years of microcomputer expertise.

The 8080 is the inevitable successor to complex custom MOS and many large discrete logic subsystems. It is the industry's first general purpose n-channel microcomputer and the first high performance single-chip CPU, with extremely simple interface requirements and straightforward programming. It runs a full instruction cycle in 2 microseconds.

As such, the 8080 extends the economic benefits of Intel's p-channel microcomputers to a new universe of systems that need fast, multi-port controllers and processors. These systems include intelligent terminals, point of sale systems, process and numeric controllers, advanced calculators, word processors, self-calibrating instruments, data loggers, communications controllers, and many more.

You can use 256 input and 256 output channels, handle almost unlimited interrupt levels, directly access 64 kilobytes of memory, and put many satellite 8080 processors around a single memory.

Interfacing is minimal and design is easy with the 8080 because all controls are fully decoded on the CPU chip itself and inputs and outputs are TTL compatible. There are separate data, address and control buses.

The 8080 microcomputer has 78 basic instructions, including the 8008 set plus new ones that make possible such features as vectored multi-level interrupt, unlimited subroutine nesting and very fast decimal and binary arithmetic.

Program development for the 8080 can be done either on a large computer using the Intel software cross products (PL/M systems language compiler, macro-assembler and simulator) or on an Intellec 8 development system with a resident monitor, text editor and macro-assembler.

The new 8080 product family includes performance matched peripheral and memory circuits configured to minimize design effort and maximize system performance. Large, low cost RAMs, ROMs, PROMs and I/O devices are available now and we will soon announce other 8080 LSI support circuits.

The 8080 is easier to use and more economical than any high performance microcomputer in sight. It's here now in volume, from the inventors of the microcomputer and the people who lead the industry in production and design support.

Intel Corporation, 3065 Bowers Avenue, Santa Clara, California 95051 (408) 246-7501.

intel Microcomputers. First from the beginning.

Single Board Computer/Trainer

(Circa 1976 $???)

History of Single Board Computer

The first true single board computer was called "dyna-micro". It was based on Intel C8080A, and also used Intel's first EPROM C1702A. The dyna-micro was renamed as "MMD-1" (Mini-Micro Designer 1) by E&L Instruments of Derby, Connecticut in 1976, and was used as an example microcomputer in the very popular 8080 "BugBook" series of the time.

Specifications:

- 8-bit 8080A Microprocessor (Maximum 2 MHz Clock)
- Clock Frequency: 780 kHz (Limited to this frequency due to 1702A UV EPROMs)
- 1 - Intel 1702A (256x8) UV EPROM based KIM (Keyboard Executive Firmware)
- 1 - Intel 1702A (256x8) User Programs
- 4 - 2111A (256x4 RAM) Total 512x8 bytes of RAM


Sound
BLASTER


Heathkit H89

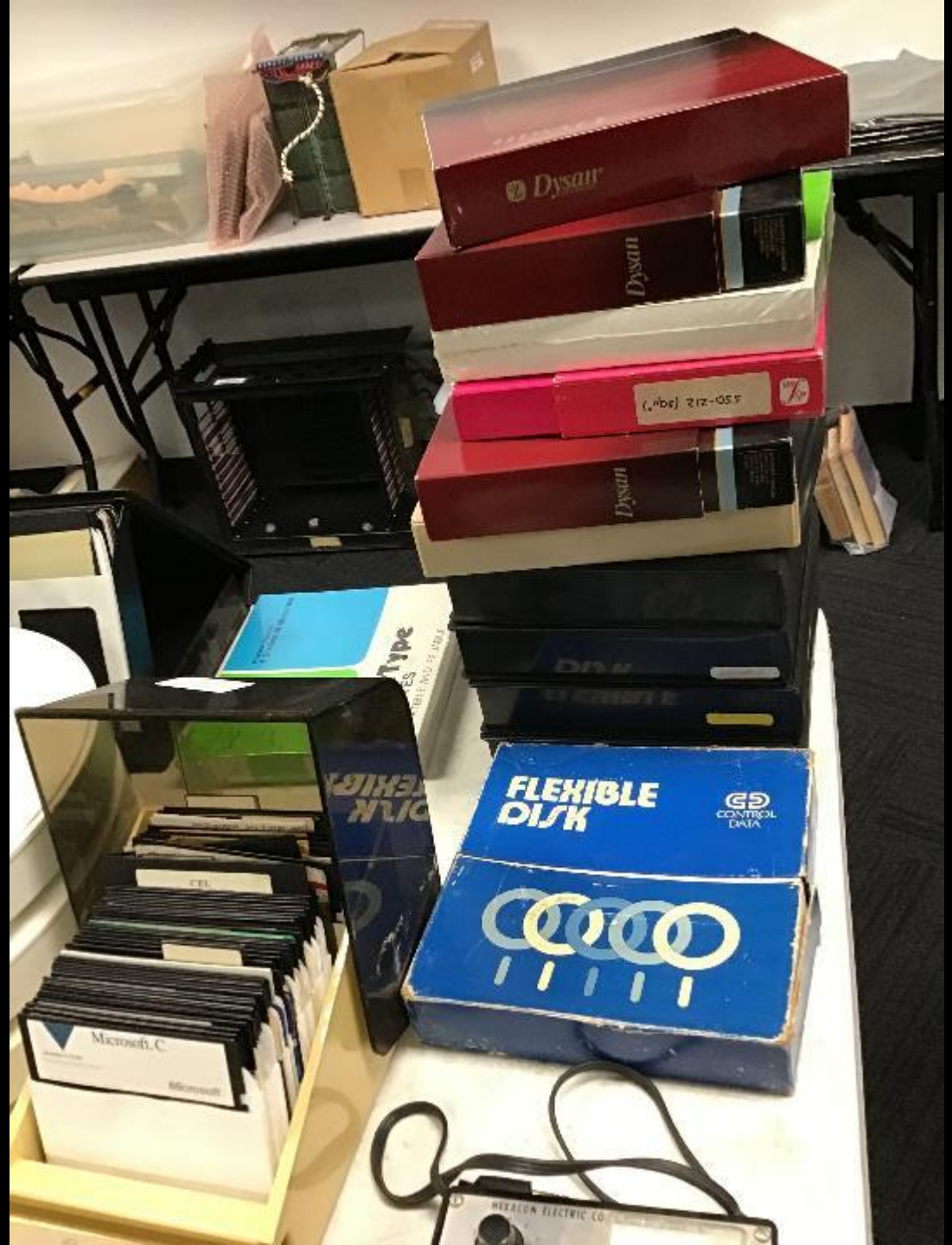

HEATH
Zenith
data systems
BASF


USER
UIDE
440
Digital's Electronic Store


apple //e


IBM


Combo EtherPCI LAN Card
EtherLink
Pavl: pzachary@got.net
1.2G SCSI HDD
$3
Pavl: pzachary@got.net
MFM drive
$40
Pavl: pzachary@got.net
1.2G SCSI HDD
$10
WARNING
SPINS + FANCY


Dysan
Dysan
Dysan
FLEXIBLE DISK
CONTROL DATA
Microsoft C

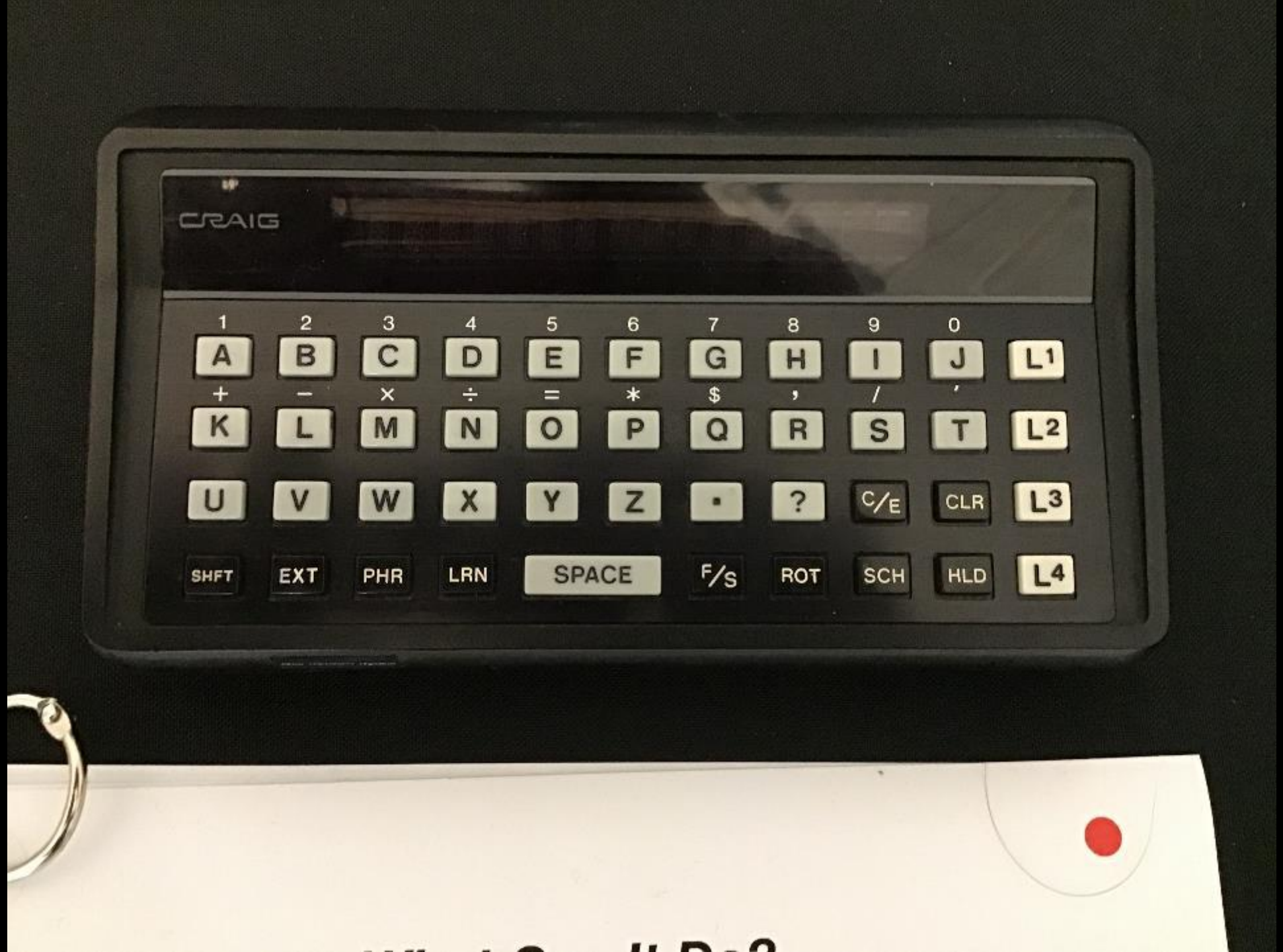

meh.

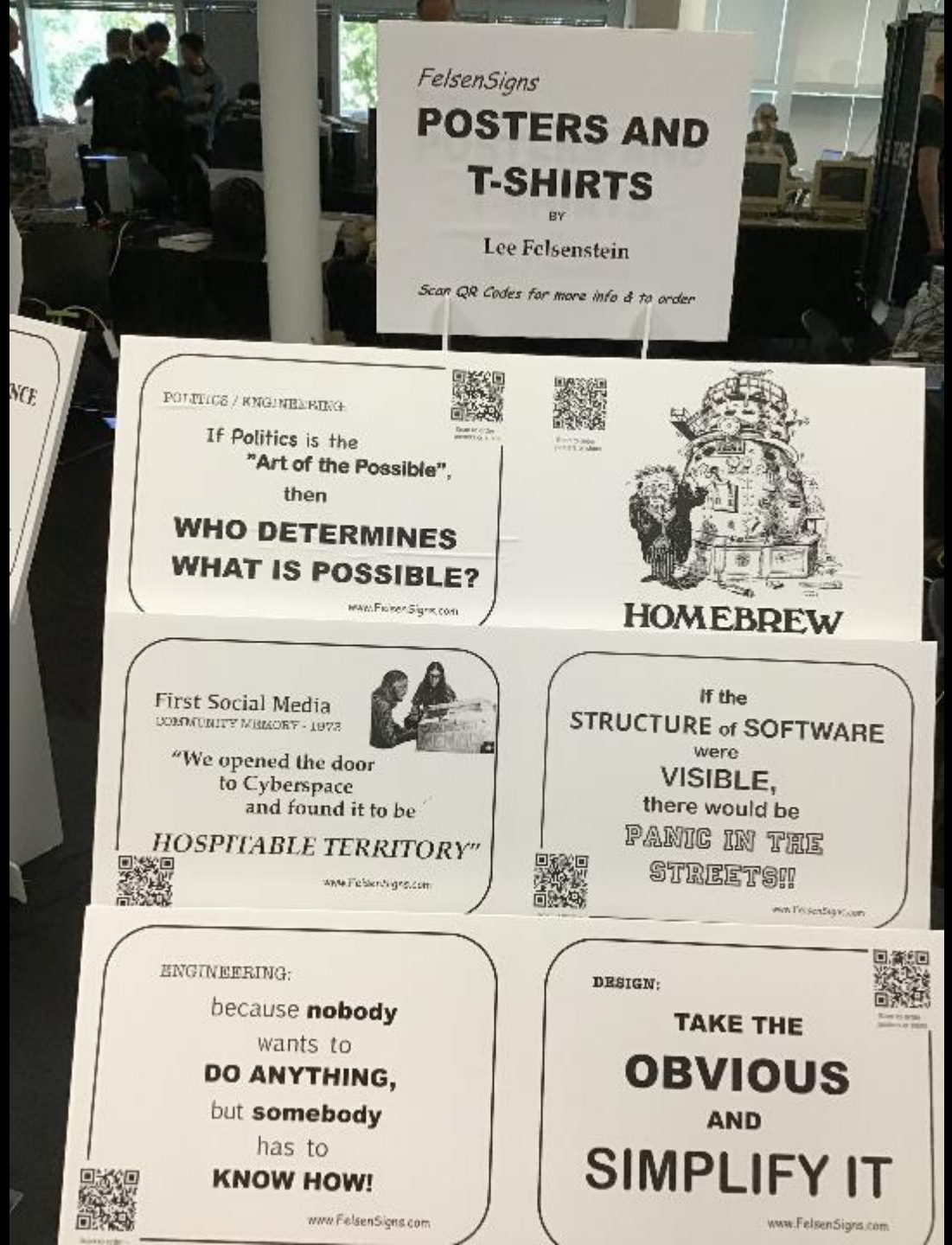

Sun
microsystems


TOSHIBA


EPSON
EPSON


Cass?
Memory Size?
Radio Shack Model III Basic
(c) '80 Tandy
READY
>
Radio Shack
TRS-80
MODEL III
MICROCOMPUTER
ENTER
SHIFT
CLEAR
BREAK


CRAIG
1 2 3 4 5 6 7 8 9 0
A B C D E F G H I J L1
+ − × ÷ = * $, / '
K L M N O P Q R S T L2
U V W X Y Z . ? C/E CLR L3
SHFT EXT PHR LRN SPACE F/S ROT SCH HLD L4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BY
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because nobody wants to DO ANYTHING, but somebody has to KNOW HOW!
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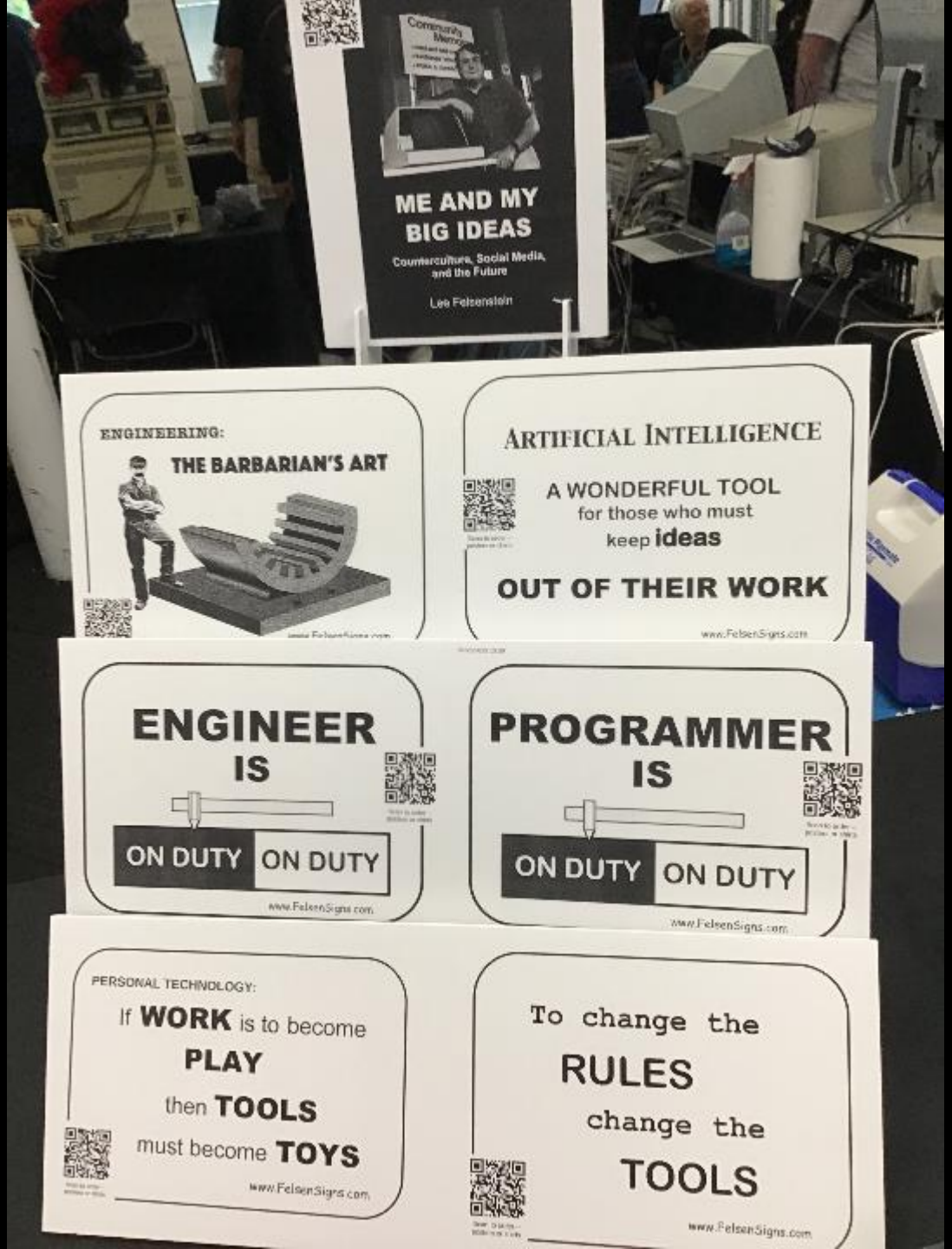
ME AND MY
BIG IDEAS
Countercultures, Social Media, and the Future
Lee Felsenstein
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ARTIFICIAL INTELLIGENCE
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IS
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If WORK is to become
PLAY
then TOOLS
must become TOYS
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To change the
RULES
change the
TOOLS
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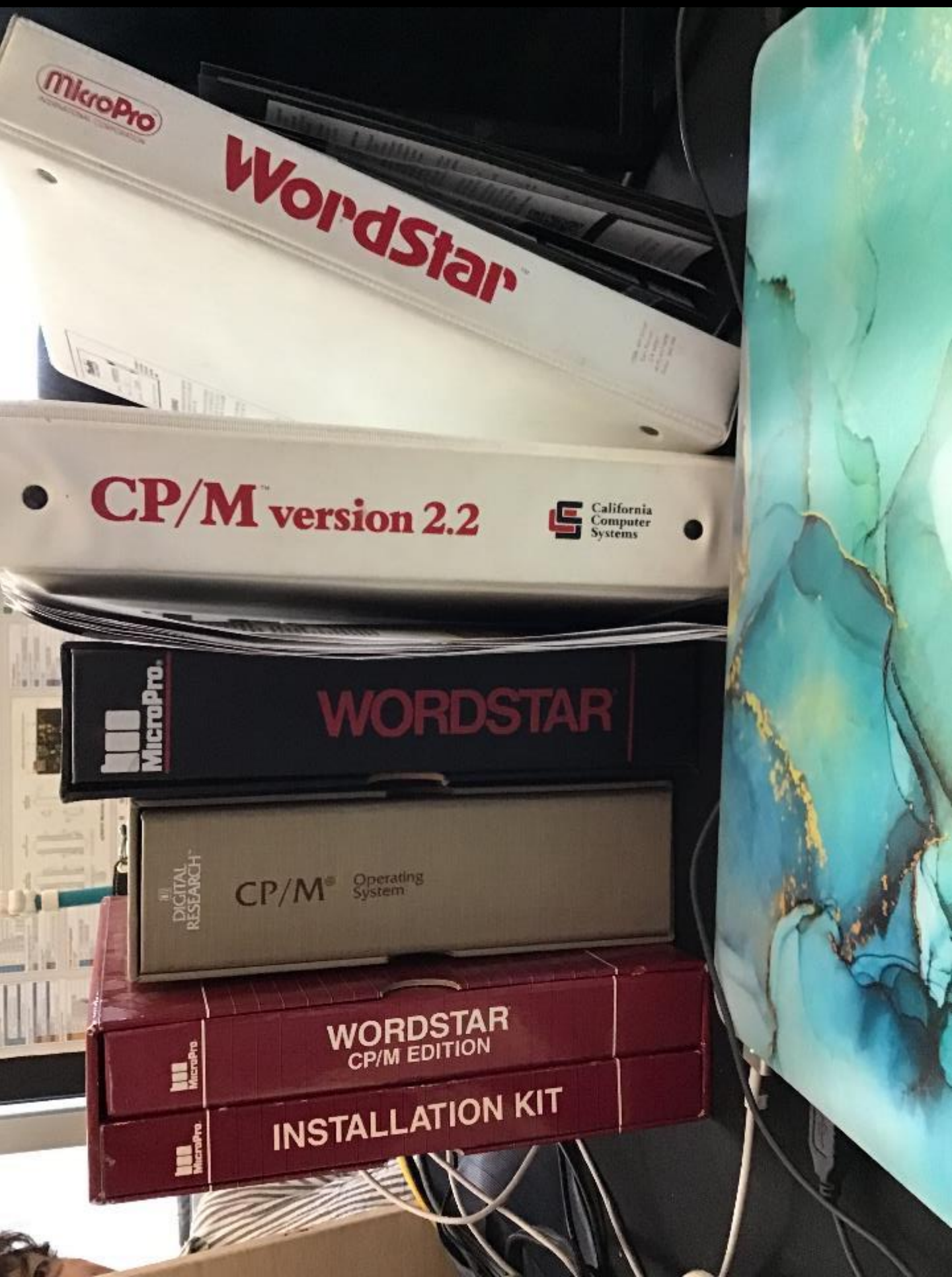
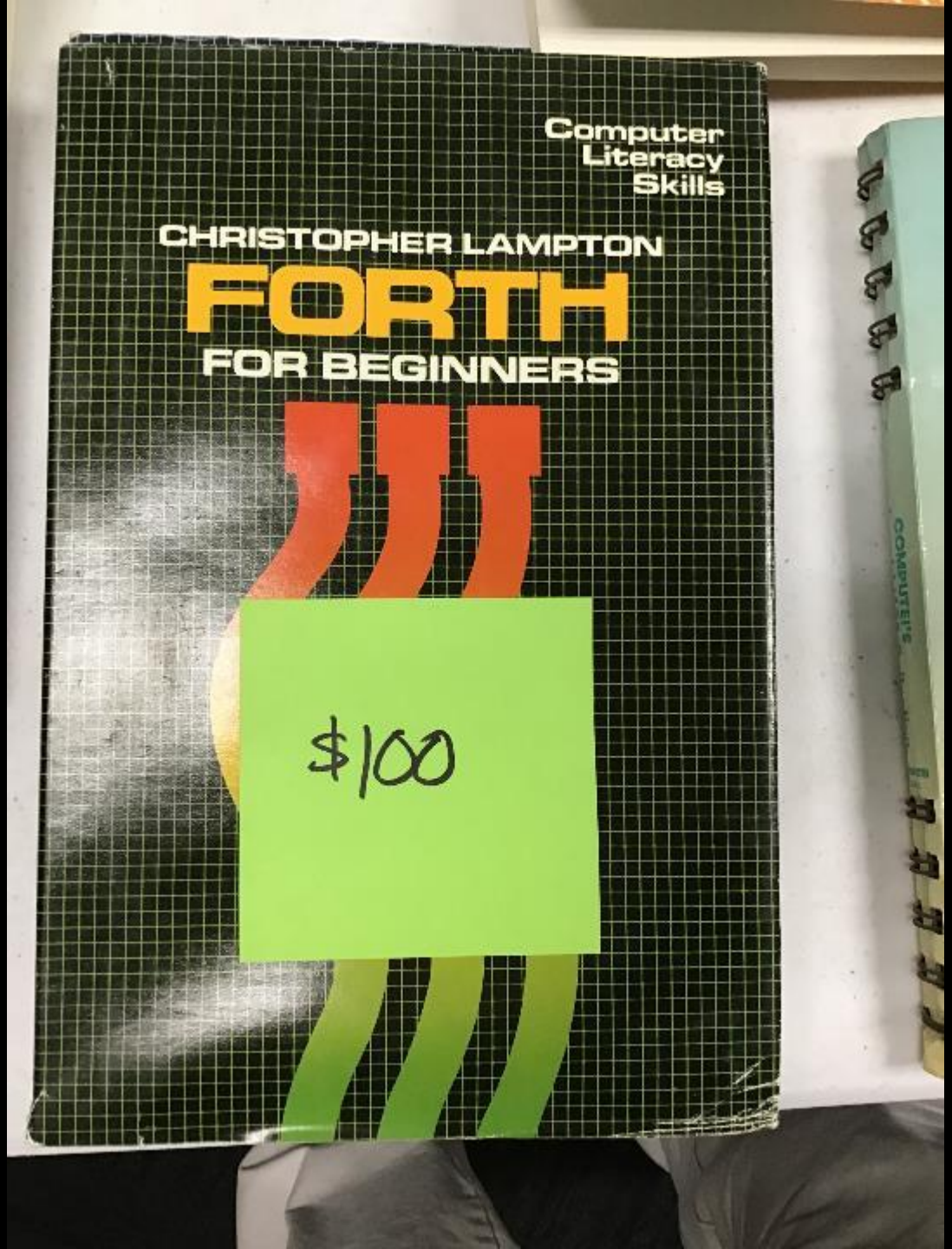
Palm Ultra-Thin Keyboard (P10900U)
Designed by ThinkOutside Inc., this premium keyboard features a unique slide-and-unfold mechanism, transforming into a 9-row layout with standard-sized keys. Its full aluminum construction provided a remarkably high-quality feel. It was compatible with SGMs utilizing the Palm universal connector.
PalmOne Universal Wireless Keyboard (3169WW)
Palm Portable Keyboard
A TRIBUTE


MicroPro
WordStar
CP/M version 2.2
California Computer Systems
MicroPro
WORDSTAR
DIGITAL RESEARCH
CP/M Operating System
WORDSTAR
CP/M EDITION
INSTALLATION KIT


Computer
Literacy
Skills
CHRISTOPHER LAMPTON
FORTH
FOR BEGINNERS
$100

INTRODUCTION TO FORTH

BY KEN KNECHT

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