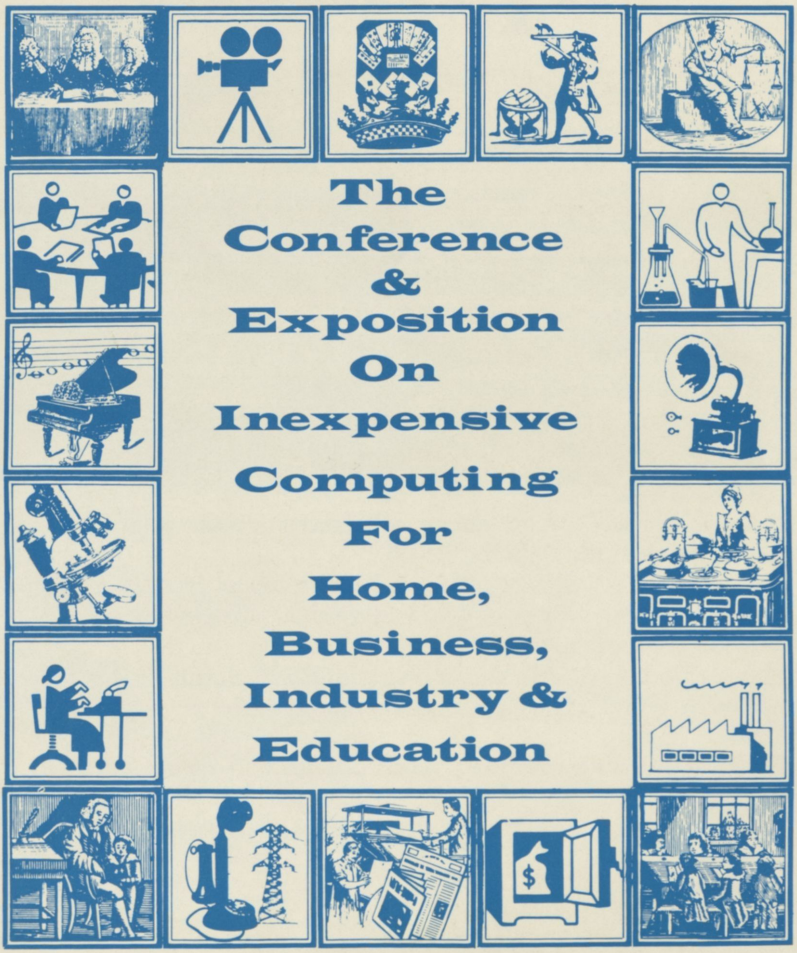
6th WEST COAST COMPUTER FAIRE

PROGRAM

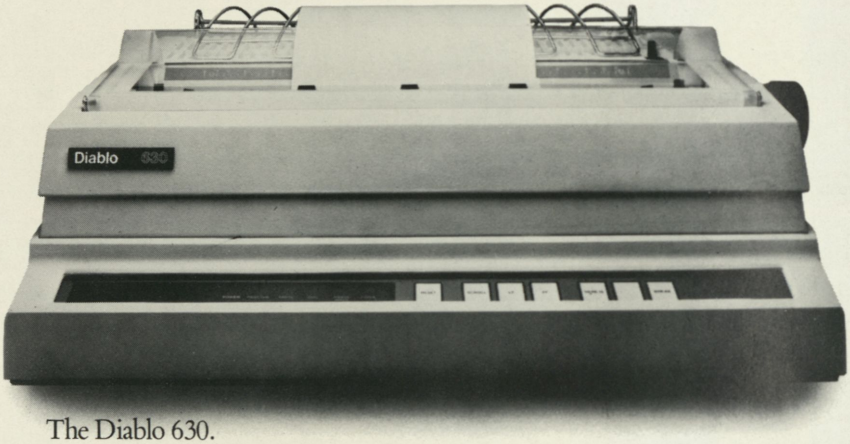


The Conference & Exposition On Inexpensive Computing For Home, Business, Industry & Education

April 3 - 4 - 5, 1981

San Francisco Civic Auditorium & Brooks Hall

If you want a choice in print wheels, there's only one choice in printers.

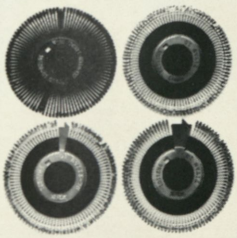


The Diablo 630.

It's the only printer that lets you use either metal or plastic print wheels. So you can choose the print wheel that's just right for the job.

The 630 works as well with a 96-character plastic daisy print wheel as it does with an 88-, 92-, or 96-character metal daisy print wheel. In over 100 different type styles.

Every 630 has fewer moving parts than competitive printers, which makes it more reliable. And it offers unsurpassed print quality. Compatibility with Diablo supplies. And bi-directional printing capability.



The 630 is the only printer in the world that uses both metal and plastic wheels.

So if you want to change your print wheels, you'll just have to change your printer.

To a Diablo 630 printer.

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Designing User Interfaces for Users

Lecturer: Dr. Jack Grimes, Tektronix

Friday, April 3, 1981, 1pm-5pm
at the
6th West Coast Computer Faire

enrollment limited to 75

The Lecturer:
currently:
- Manager, Advanced Development for Desktop Computers, Tektronix
- Adjunct Professor of Computer Science, Oregon State University
- Researcher in visual perception, Tektronix & University of Oregon
- internal consultant to management on technology issues, Tektronix

recently:
- Co-chair, 2-day "User Interface Design" Workshop, SIGGRAPH '80
- Distinguished Visitor, IEEE Computer Society lecturer program
- Technical Editor, IEEE *Computer* magazine
- Manager, 4051 Graphics Computer Systems Software Group, Tektronix
- International Tutorials Lecturer, e.g.
  - China Technology Exchange Program, 1979
  - Computer Architecture Workshop, Nexdorf, 1976
  - 2nd USA-Japan Computer Conference, Tokyo, 1975
- published over 20 papers on user interface design, computer architecture, and silicon technology
- frequent guest lecturer before professional and technical groups

Seminar registration is $70 and includes:
- — registration for the 6th West Coast Computer Faire conference & exposition
- — complete set of handouts, including lecture notes and article reprints

Attendance is limited to the first 75 who enroll.

Please enroll me in the Professional Seminar, "Designing User Interface for Users", taught by Dr. Jack Grimes, to be held Friday, April 3, 1981, 1pm-5pm, at the West Coast Computer Faire in San Francisco's Civic Auditorium & Brooks Hall.

[ ] A check for the $70 enrollment fee is enclosed (payable to "Computer Faire Seminar Program").
I understand that, if this application arrives after the seminar is filled to capacity, the check will not be deposited and will be promptly returned to me.

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Turn in this form & payment to Computer Faire Office.

The Seminar:
1. Introduction — *brief!*
2. Knowledge acquisition — *How do users acquire and utilize information in interactive systems?*
3. Time — *What makes a user interface interactive?*
4. Emotional — *Why do some systems make users nervous?*
5. Real systems — *What are the strengths and weaknesses of existant systems?*

videotapes and discussion of a number of commercial and experimental systems

As the number of computer-naive people using computer-based systems grows, the design of the user interface increasingly effects the success of those systems.

This professional seminar will cover the user side of user interfaces to computer-based equipment. The seminar is aimed at systems designers and programmers who are interested in learning more about current issues and questions, for example:

When are menus a good technique?
What role does the CRT display play?
What makes a system friendly?
How do you measure interactivity?

The emphasis will be on pragmatics and applications; not theory.

The seminar presents the results of five years of research into the human factors as they apply to how users interact with computer systems.

User interfaces to several experimental and commercial systems will be presented and analyzed to illustrate key principals.

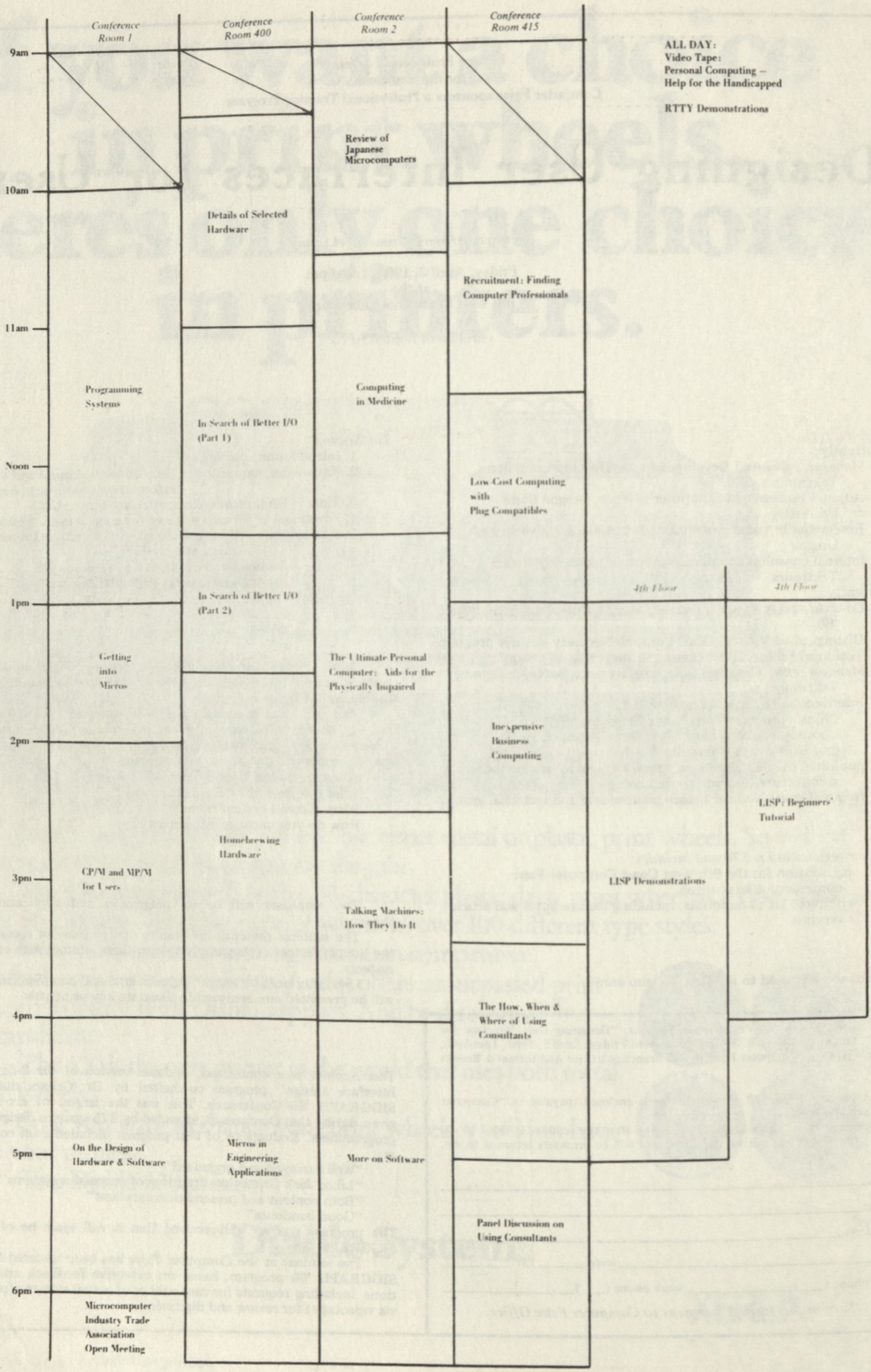
This seminar is a condensed, updated version of the 2-day "User Interface Design" program co-chaired by Dr. Grimes during the SIGGRAPH '80 Conference. This was the largest of six tutorials given during that Conference, attended by 275 systems designers and programmers. Evaluations of that program included such comments as:

"Well surveyed and organized"
"Liked Jack Grimes post-mortem of successful systems"
"Both content and presentation excellent"
"Good handouts"

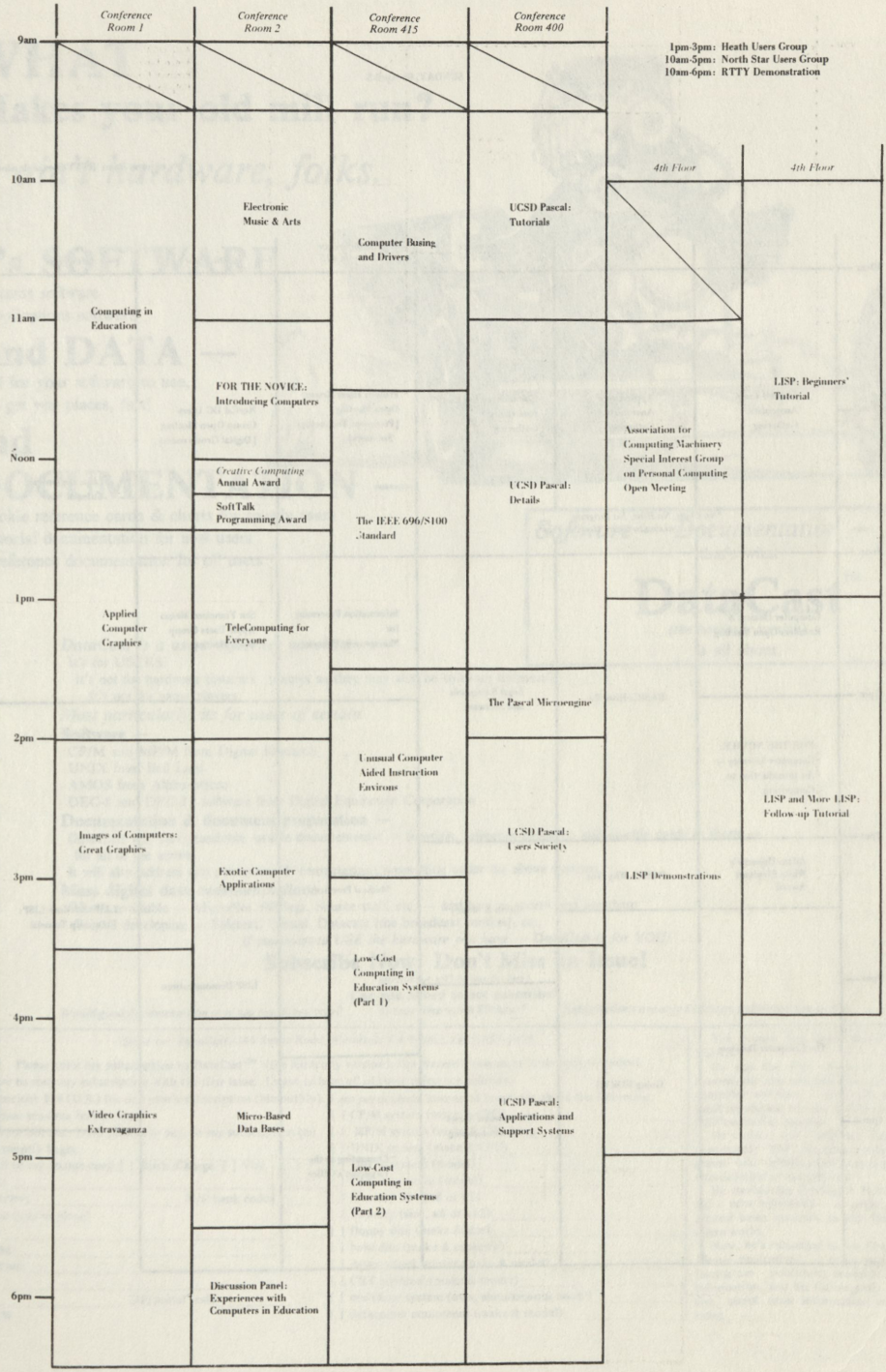
The program was so well-received that it will again be offered at SIGGRAPH '81.

The seminar at the Computer Faire has been updated from the SIGGRAPH '80 program, based on extensive feedback and evaluations, including requests for case studies of actual systems (presented via videotape) for review and discussion.

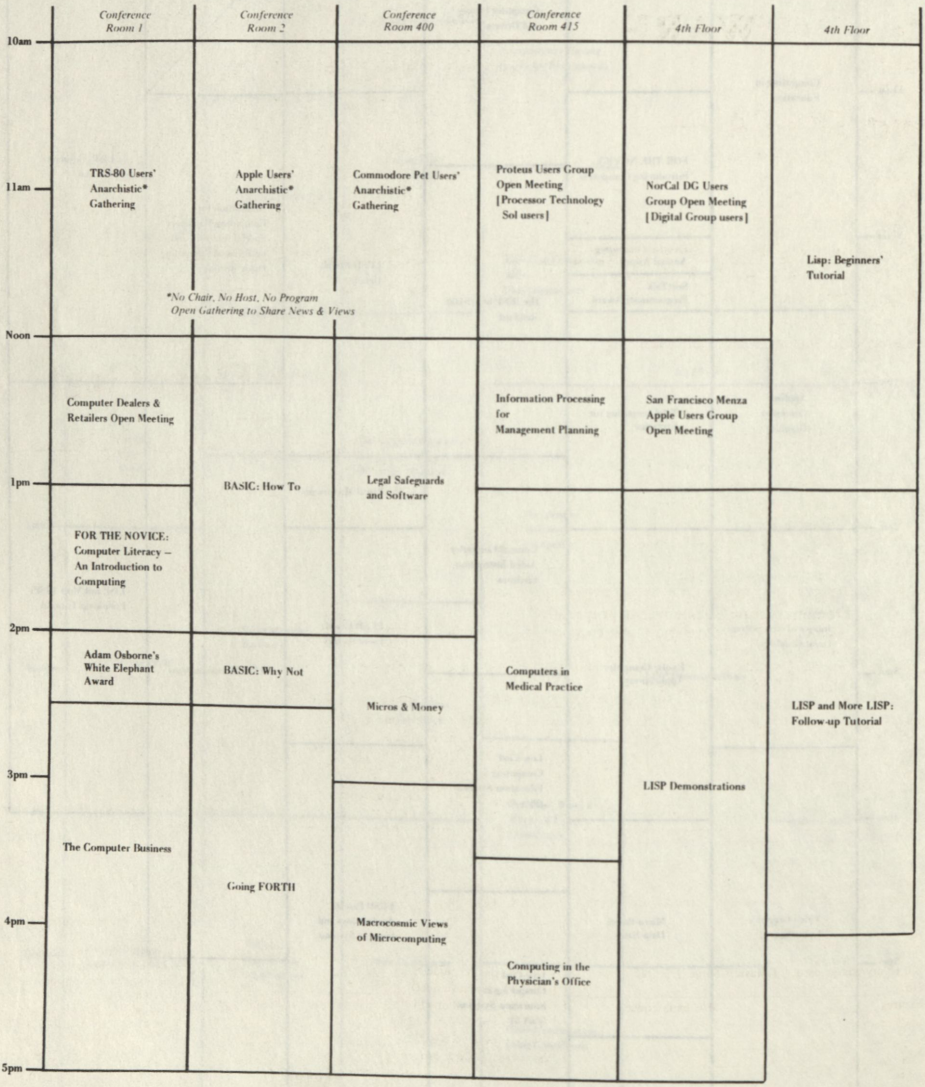
FRIDAY, 81 April 3



SATURDAY, 81 April 4



noon-5pm: RTTY Demonstration



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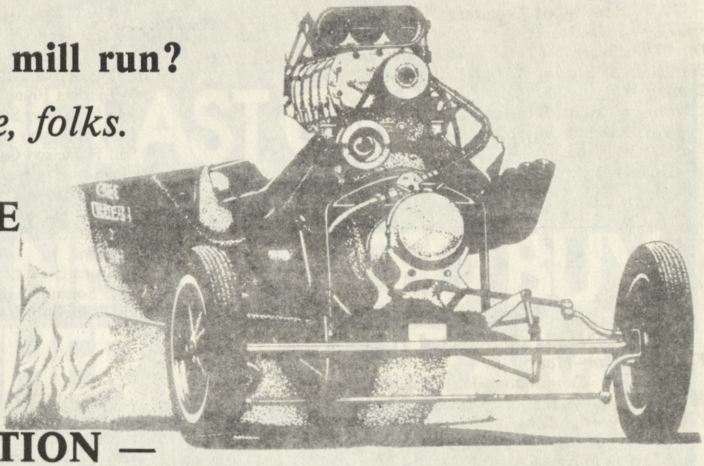

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[ ] DEC-11 system (model)_____
[ ] memory size (x8 or x11
[ ] memory (size, x8 or x12)_____
[ ] floppy disc (make & size)_____
[ ] hard disc (make & capacity)_____
[ ] daiseywheel printer (make & model)_____
[ ] CRT terminal (make & model)_____
[ ] multiuser system (max. simultaneous users)_____
[ ] datacomm equipment (make & model)_____

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He was the first editor of *Dr. Dobb's Journal*, the first periodical to address microcomputer software – and built an international reputation for the definitive quality of *DDJ*'s editorial content.

He created the Computer Faires, which consistantly have the best Conference programs and information exchange of all microcomputer conventions.

He created the *Intelligent Machines Journal* – now *InfoWorld* – to offer a fast-turnaround news medium to the fast-changing micro world.

Now, he's returning to his first love (and 15year profession) – software, his recent fascination - publishing readable and useful information, and his future goals – inexpensive, useful mass information communications.

Conference Program

Review of Japanese Microcomputers

Friday, 9am-10:30am — *Room 2*

The "Third Wave" of Personal Computers in Japan – An Evaluation of Hitachi, NEC, Oki and Sharp Personal Computers

Toshiaki Yasuda, Professor
Tokyo Denki University
202-30 Setogaya
Hodogaya, Yokohama, Japan 240

Details of Selected Hardware

Friday, 9:30am–11am — *Room 400*

Coordinator: Jerry Randal Bauer

Heath Company's H8: The Computer Enthusiast's Choice

Charles Floto, Editor
Buss: Independent Newsletter of Heath Co Computers
325 Pennsylvania Ave SE
Washington DC 20003

Single-Chip Microcomputer Programs EPROMs

Jerry Randal Bauer, Engineer
American Microsystems, Inc
3800 Homestead Road
Santa Clara CA 95051

The Anatomy of a Single Chip Microcomputer

Peter M. Redford
American Microsystems Inc.
3800 Homestead Rd
Santa Clara CA 95051

Programming Systems

Friday, 10am–1pm — *Room 1*

Coordinator: Thomas P. Bun

Development of The Last One - British Software Which Writes Complete, Bug-free Computer Systems

David Tebbutt, Editor
Personal Computer World
14 Rathbone Place
London W1P 1DE ENGLAND

David James
Creator of The Last One
Eurotyres Bldg, Station Rd
Ilminister, Somerset ENGLAND

Warnier-Orr Diagrams; Some Extensions

W.N. Nawatani
ASD, Lasar Laboratory
Bldg.573, 1180 Bordeaux Dr
Sunnyvale CA 94086

SAL/80: A Structured Assembly Language for the 8080/8085/Z80

R. Steve Newberry
Newberry Microsystems
24225 Summerhill Ave
Los Altos CA 94022

Tutorial: Beginners' LISP

Friday, 1pm–4pm — *LISP Tutorials Room*

Coordinator: Lois Patricia Flynne

LISP - Beginning Tutorial

Lois Patricia Flynne, Ph.D., Prof Info Sci
San Francisco State University
1600 Holloway Ave
San Francisco CA 94132

Michael Burke, Assoc. Prof.
Mathematics & Computer Science
San Jose State University
San Jose CA 95192

Tom Davis
Stanford University
1055 Sonoma Ave
Menlo Park CA 94025

Demonstration: RTTY (Radio Teletype)

Friday, 10am-5pm — *Room 401*

Coordinator: Stuart Neblett

Amateur Communications Society (RTTY) Open Seminar & Demonstration

Amateur Communications Society
493 4th Ave
Redwood City CA 94063

Videotape: Personal Computing: Help for the Handicapped

Friday, 10am–5pm — *Mezzanine Floor*

Coordinator: David L. Jaffe

Personal Computing, Help for the Handicapped (Closed Captioned)

David L. Jaffe
Rehab Eng R & D, Palo Alto VA Med Ctr
3801 Miranda (153)
Palo Alto CA 94304

Computing in Medicine

Friday, 10:30am–12:30pm — *Room 2*

Coordinator: L. Berkenbile, M.D.

Computers and Medical Diagnosis

Michael L. Richardson, M.D.
Deptartment of Radiology
David Grant USAF Medical Center
Travis AFB CA 94535

Computers In Medicine

L. Berkenbile, M.D.
Prosoft Medical Billing
3604 Foothill Blvd
La Crescenta CA 91214

F. Berkenbile, Ph.D.
Prosoft Medical Billing
3604 Foothill Blvd
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Microcomputer Applications in Laboratory Data Acquisition and Management

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Recruitment: Finding Computer Professionals

Friday, 10am–11:30am — *Room 415*

Coordinator: Michael P. Harkins

Finding & Keeping Computer Professionals During the Explosive 1980's

Michael P. Harkins
Associated Business Consultants Inc.
43 N. Main St. NJ
Medford NJ 08055

A Sign of the Times - Recruitment and Relocation Policy Update

The Relocation Center
(a division of Van Vleck Realtors)
4950 Hamilton Av
San Jose CA 95130

In Search of Better I/O (Part I)

Friday, 11am–12:30pm — *Room 400*

Coordinator: Henry L. Pfister

A Simple Computer Eye

Henry L. Pfister
University of Southern California
Universtiy Park
Los Angeles CA 90007

The Design of a Slow Scan TV System

Ken Rothmuller, WA6NFA
1104 Beaumont Dr
San Jose CA 95129

Low-Cost Computing with Plug Compatibles

Friday, 11:30am–1pm — *Room 415*

Low-Cost Computing with Plug Compatible Peripherals and Mainframes

Joseph T. Simone, National Sales Dir
Decision Data Computer Corporation
1100 Witmer St
Horsham PA 19044

The Ultimately Personal Computer: Aids for the Physically Impaired

Friday, 12:30pm–2:30pm — *Room 2*

Coordinator: David L. Jaffe

Smart Wheelchair

David L. Jaffe
Rehab Eng R & D,Palo Alto VA Medical Ctr
3801 Miranda (153)
Palo Alto CA 94304

Discussion Panel: The Johns Hopkins 1st National Search for Personal Computing Applications to Aid the Handicapped

Dan Van Horn
Sensory Aids Foundation
399 Sherman Ave
Palo Alto CA 94304

David L. Jaffe
Rehab Eng R & D, Palo Alto VA Med Ctr
3801 Miranda (153)
Palo Alto Ca 94304

Getting into Micros

Friday, 1pm–2pm — *Room 1*

Coordinator: Raymond K. Adams

Winning the Micro Game

Don Lancaster
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In Search of Better I/O (Part II)

Friday, 12:30pm–1:30pm *Room 400*

Coordinator: Walter Banks

The Tyranny of QWERTY
David D. Thornburg
Innovision
Box 1317
Los Altos CA 94022

BAR CODE TECHNOLOGY: Past, Present, and Future
Walter Banks
Dept. of Computing and Information Science
University of Guelph
Guelph ON N1G 2W1 CANADA
Carl T. Helmers Jr.
North American Technology Inc
Strand Building, Route 202N
Peterborough NH 03458

Talking Machines: How They Do It

Friday, 2:30pm–4pm *Room 2*

Coordinator: Carol A. Simpson

Access to Speech Synthesis and its Applications
Carol A. Simpson
Psycho-Linguistic Research Associates
2055 Sterling Ave
Menlo Park 94025

Expanding the TI Speak and Spell's Vocabulary With Speech Sound Concatenation
John P. Cater, Manager
Intelligent Systems Engineering
Southwest Research Institute
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Programming 'Phoneme' Voice Synthesizers Phonetically
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Inexpensive Business Computing

Friday, 1pm-3:30pm — *Room 415*

Coordinator: Nicholas Rosa

Acquiring the Small Business Computer: Take the Backwards Approach
Nicholas Rosa
Nicholas Rosa Associates
1901 S. Bascom Av No.349
Campbell CA 95008

'It Loves Me, It Loves Me Not': Micros in the Small Business
Jim Schreier
4327 E. Grove St
Phoenix AZ 85040

The Angry Consumers Guide to Word Processors
Martin L. Dean
Attorney at Law
919 Sir Francis Drake Blvd
Kentfield CA 94904

Some Reflections on a Commitment to Quality
James L. Gagne, M.D.
Datamed Research
1433 Roscomare Rd
Los Angeles Ca 90024

Flexible Versus Rigid Software
Thomas P. Bun
CompuMax, Inc.
Box 1139
Palo Alto CA 94301

Homebrewing Hardware

Friday, 1:30pm–4:00pm — *Room 400*

Coordinator: Chuck Hastings

After Building a Computer Try a Robot!
Melvin L. Zeddies
1854 Pacific Beach Dr
San Diego CA 92109

Design Considerations for a Computer Controlled Home
Mark M. Lambert
McRae & Lambert, Inc.
1615 Dodson Av No.2
San Pedro CA 90732

Life on the Frontier: A Homebrew 16 Bit Computer
Frederick A. Knox
815 Mora Dr
Los Altos CA 94022

An 8035 Homemade Computer
Darrell D. McKibbin
Consultant
1087 Remington
Sunnyvale CA 94087

Doing Your Own Thing in High-speed Digital Arithmetic
Chuck Hastings, Product Planning Staff
Monolithic Memories Inc.
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Sunnyvale CA 94086

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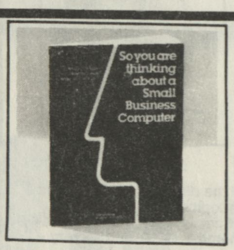

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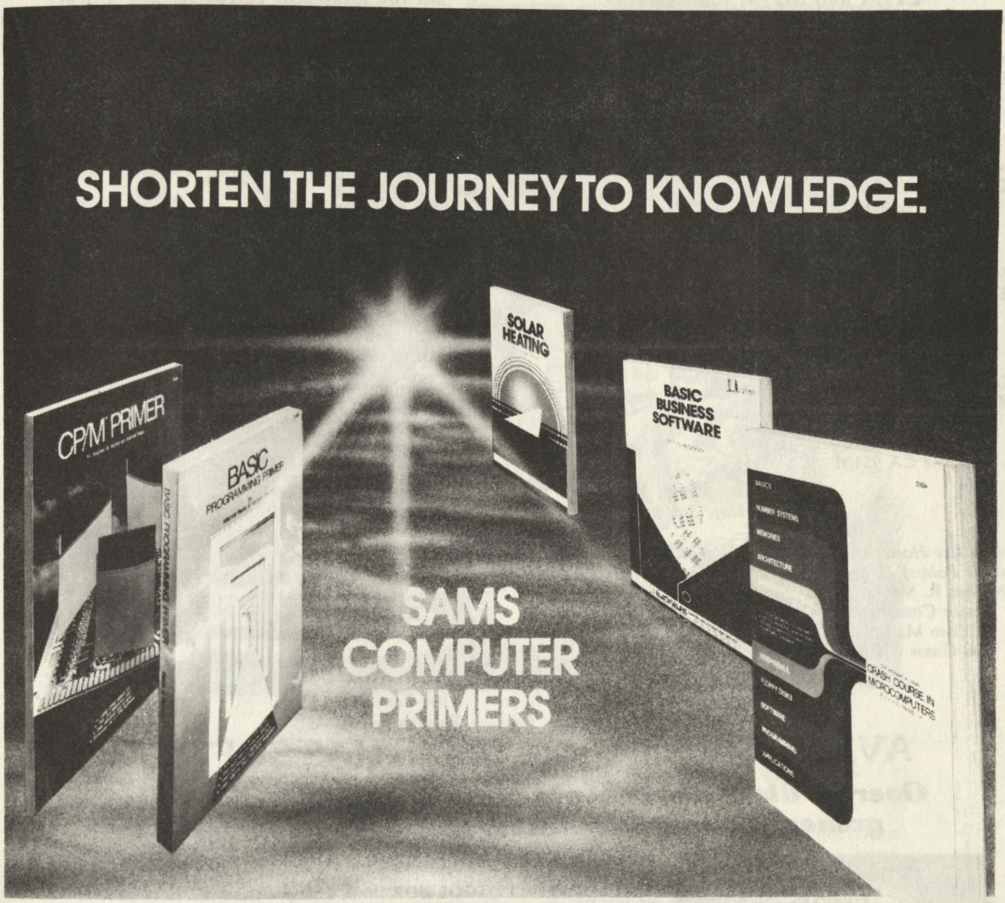

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CP/M and MP/M for Users

Friday, 2pm–4pm *Room 1*

Coordinator: Sol Libes

Session: CP/M & MP/M User Meeting
Sol Libes, Editor
Microsystems Magazine
Box 1192
Mountainside NJ 07092

New CP/M & MP/M Developments
Dr. Gary Kildall
Digital Research
Box 579
Pacific Grove CA 93950

CP/M Applications Software
Tony Gold
Lifeboat Associates
1651 3rd Ave
New York NY 10028

A User's Perspective of CP/M
Bruce Kendall
Corvus Systems
2029 O'Toole Ave
San Jose CA 95131

On the Design of Hardware & Software

Friday, 4pm–6pm *Room 1*

Coordinator: Dr. Douglas H. Williams

Designing Hardware and Software for Mere Humans
Dr. Douglas H. Williams
Psycho-Linguistic Research Associates
2055 Sterling Ave
Menlo Park CA 94025

Toward Display Oriented Operating Systems
Carl T. Helmers
North American Tech Inc.
Strand Bldg 174 Concord St No.23
Peterborough NH 03458

The Bridge to the Future
Chris Langewis, Vice President
Phase One Systems, Inc.
7700 Edgewater Dr No.830
Oakland CA 94621

Linguistic Chauvinism
Mark Cummings, Assistant Prof.
Broadcast Comm. Dept. San Francisco State Univ.
1600 Holloway Ave
San Francisco CA 94132

The How, Where & When of Using Consultants

Friday, 3:30pm-5pm *Room 415*

Coordinator: V. H. Finefrock

How to Use Hardware Consultants (or How to Keep Your Brownie Points)
William R. Maclay
Senior Consultant
William Maclay and Associates
Los Gatos CA 95030

Marketing Your Software
Victor M. Wyman
Technology Watch
841 Tulane Ct
Mountain View CA 94040

Deciding on a Software Package or Custom Software
Catherine M. Sinclair
1104 Terra Nova Blvd
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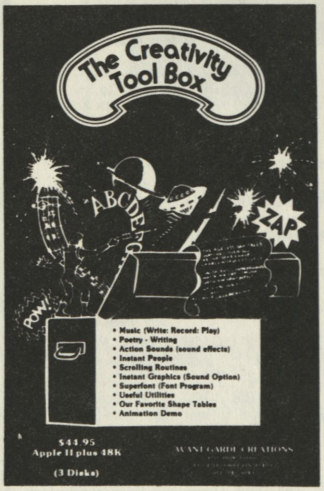

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Micros in Engineering Applications

Friday, 4pm–6pm — *Room 400*

Coordinator: Alan R. Miller

Design Automation for Microcomputers
David W. Russell
Magnum Opus
17330 SW Chatelain
Aloha OR 97005

Microcomputer Use for Studying Interconnected Electric System Frequency
R.K. Adams, J.M. McIntyre
Instr & Controls Div
Oak Ridge Nat Lab
Oak Ridge Tn 37830
R.W.Rochelle
Electrical Eng Dept
University of Tennessee
Oak Ridge TN 37830

Development of Microcomputer Systems and their Applications at the Laboratory of Wave Information Processing of Hokkaido University
Yoshinao AOKI
Dept. of Electrical Engineering
Hokkaido University
N13 W8 Sapporo 060 JAPAN

Pascal Programming for Engineers: General Least-Squares Curve Fitting
Alan R. Miller,Professor of Metallurgy
New Mexico Tech
Socorro NM 87801

More on Software

Friday, 4pm–6pm — *Room 2*

Coordinator: Fredric C. Gey

Runic: A Homebrew Compiler Project
Marty Franz
314 E. Whitcome No.E
Madison Hts MI 48071

Guidelines for Choosing an Object-Oriented Programming Style in LISP
Jim Schmolze
Bolt, Beranrk and Newman Inc
Cambridge MA 02138

The LISP Steamroller
Michael Burke, Associate Professor
Mathematics and Computer Science Dept
San Jose State University
San Jose CA 95192

Introduction to the ACCESS/80 Report Generation Language and System
Fredric C. Gey
Friends Software
2020 Milvia St No.440
Berkely CA 94704

Open Meeting: Microcomputer Industry Trade Association

Friday, 6pm–7pm — *Room 1*

Coordinator: Dennis Barnhart

Microcomputer Industry Trade Association Meeting
Dennis Barnhart, Pres
MITA
1143 Crane No.208
Menlo Park CA 94025

Richard Linn, Exec Director
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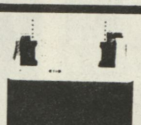

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Panel: The How, Where & When of Using Consultants

Friday, 5pm–6pm — *Room 415*

Coordinator: V. H. Finefrock

Panel: How, Where & When of Using Consultants

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Mountain View CA 94040

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841 Tulane Ct
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Carl Ramesey, Sr. Consultant
Heights Information Technology
383 Grand Ave No.8
Oakland CA 94610

William Maclay
William Maclay & Associates
16300 Lavender Ln
Los Gatos CA 95030

Computing in Music & the Arts

Saturday, 9:30am–11am — *Room 2*

Coordinator: Ceaser Castro

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Casheab
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David Dameron
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Palo Alto CA 94306

UCSD Pascal: A Tutorial

Saturday, 9:30am–11am — *Room 400*

Coordinator: Neal Iscoe

Tutorial: Pascal

Neal Iscoe
Statcom
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Austin TX 78731

Tutorial: How to Implement UCSD Pascal on Your Computer

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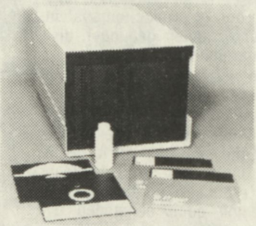

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Computing in Education

Saturday, 9:30am-12:30am — *Room 1*

Coordinator: Geoff Zawalkow

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Computer Science Department
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Denton TX 76203
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On Using the Tutorial Mode in CAI
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Essex Community College
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Baltimore MD 21218

AIM: Remedial Math for Secondary Students
Craig Walker, Resource Teacher
Arrowview Jr. High School
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San Bernardino CA 94205
Jerri Jenkins, Computer Ctr Dir
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Computer Busing & Drivers

Saturday, 9:30am-11:30am — *Room 415*

Coordinator: Richard Lyman

Slave Processor for S-100
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Casheab
5737 Avenida Sanchez
San Diego CA 92124

The PI Bus - A Processor Independent Bus Structure
Anton Pietsch
Proteus Engineering
323 S.El Molino
Pasadena CA 91101

Discussion: Proposed Advanced Microcomputer Systems, Backplane Bus-P896
Richard Lyman
Summit Computer Systems
22685 Summit Road
Los Gatos CA 95030

Tutorial: Beginners' LISP

Saturday, 10am–12:30pm — *LISP Tutorials Room*

Coordinator: Lois Patricia Flynne

LISP - Beginning Tutorial
Lois Patricia Flynne, Ph.D., Prof Info Sci
San Francisco State University
1600 Holloway Ave
San Francisco CA 94132
Michael Burke, Assoc. Prof.
Mathematics & Computer Science
San Jose State University
San Jose CA 95192
Tom Davis
Stanford University
1055 Sonoma Ave
Menlo Park CA 94025

Demonstration: RTTY (Radio Teletype)

Saturday, 10am-5pm — *Room 401*

Coordinator: Stuart Neblett

Amateur Communications Society (RTTY) Open Seminar & Demonstration
Amateur Communications Society
493 4th Ave
Redwood City CA 94063

Open Meeting: North Star Users Group

Saturday, 10am–6pm — *Room 204*

Coordinator: William F. Banaghan

North Star Computers Users Meeting
William F. Banaghan, Chairman
North Star Users Group
1261 Lancashire Dr
Concrod CA 94518

Open Meeting: Heath Users Group

Saturday, 1pm–3pm — *4th Floor Meetings Room*

Coordinator: (no chair)

Heath Computers Users Meeting
Heath Users Group
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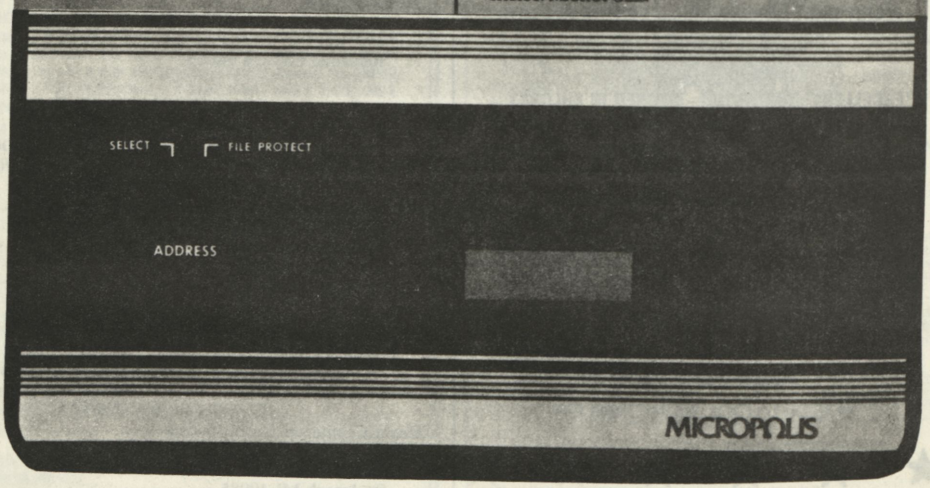

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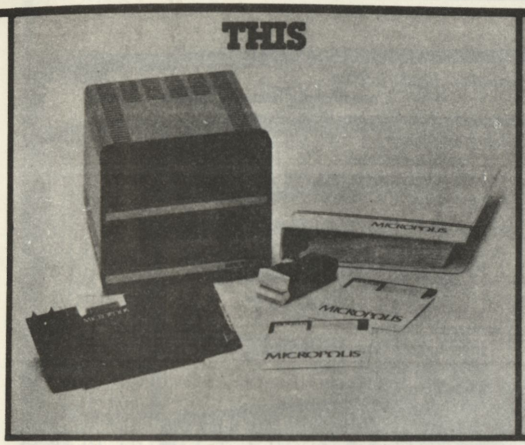

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MCP-1043-2	315 KB SINGLE	$1145.00	$695.00
MCP-1041-2	315 KB SINGLE, NO PS	$1045.00	$639.00
MCP-1042-1	143 KB SINGLE	$795.00	$625.00
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ADD-ON DRIVES			
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MCP-1023-2	315 KB SINGLE	$645.00	$495.00
MCP-1021-2	315 KB SINGLE, NO PS	$545.00	$475.00
MCP-1022-1	143 KB SINGLE	$545.00	$375.00
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MCP-1037-2	77 TRACK DUAL	$1395.00	$795.00

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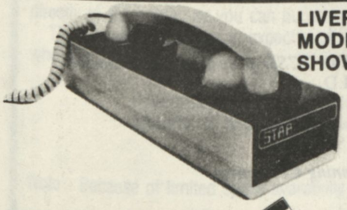

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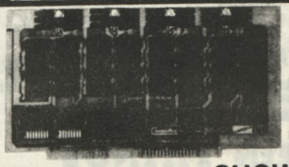

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The IEEE 696/S-100 Standard

Saturday, 11:30am–1:30pm *Room 415*

Coordinator: Sol Libes

Session: The IEEE 696/S-100 Standard

Sol Libes, Editor
Microsystems Magazine
Box 1192
Mountainside NJ 07092

Status of Standard Approval

Howard Fullmer, Chairperson IEEE 696/S-100 Comm
Parasitic Engineering
1101 9th St
Oakland CA 94606

S-100 Standard DMA Protocol

Kels Elmquist
Ithaca Intersystems
Box 91
Ithaca NY 14850

What Does IEEE-compatible Really Mean?

Mark Garetz
Godbout Electronics
Bldg 725 Box 2355
Oakland Airport CA 94614

Open Meeting: ACM SIG on Personal Computing

Saturday, 11am–1pm *4th Floor Meetings Room*

Coordinator: Liza Loop

The Special Interest Group on Personal Computing of the Association for Computing Machinery

Liza Loop
3781 Star King Cir
Palo Alto CA 94306

For the Novice: Introducing Microcomputers

Saturday, 11am–noon *Room 2*

Introducing Microcomputers (And How To Use Them)

Tony Bove & Cheryl Rhodes, Editors
DataCast Magazine
345 Swett Rd
Woodside CA 94062

UCSD Pascal: Details

Saturday, 11am–1:30pm *Room 400*

Coordinator: Charles Chapin

UCSD Pascal, Version IV A User's View

Charles Chapin
Chapin Associates
11568 Sorrento Valley Rd No.11
San Diego CA 92121

The IBS Multi-User/Multi-Tasking Operating System

Alfred A. Pease
Independent Business Systems, Inc.
1328 Concannon Blvd
Livermore CA 94550

Robert G. Nelson
Independent Business Systems, Inc.
1328 Concannon Blvd
Livermore CA 94550

Progressing from 1.0 to 1.1 A Review of the New Apple Pascal

Carl Helmers
North American Technology Inc
Strand Bldg, 174 Concord St No.23
Peterborough NH 20345

Digicomp Research Pascal-100: High Performance UCSD Pascal on the S-100 Bus

Mark Bodenstein
Digicomp Research
1 Terrace Hill
Ithaca NY 14850

How to Add I/O Device Drivers to UCSD Pascal

Barry Demchek
Advanced Computer Design
7582 Trade St
San Diego CA 92121

The Pascal Microengine

Saturday, 1:30pm–2pm *Room 400*

A User Looks at the Pascal Microengine One Year Later

Tom Pittman
Box 6539
San Jose CA 95150

UCSD Pascal: The Users Society

Saturday, 2pm–3:30pm *Room 400*

Coordinator: James L. Gange, M.D.

UCSD p-System Users' Society: A Service for Computer Users

A. Winsor Brown
USUS Vice President
Box 1148
La Jolla CA 92038

A Report on USUS: The UCSD p-System Users' Society

James L. Gagne, M.D.
Datamed Research
1433 Roscomare Rd
Los Angeles CA 90024

USUS Advanced Planning Committee

Randy Bush
Volition Systems
98-B McKinnley Rt
Myrtle Point OR 97458

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3 St. Paul, Minnesota — September 9-11
4 Detroit, Michigan — September 24-26
5 Pittsburgh, Pennsylvania — October 1-3
6 St. Louis, Missouri — October 15-17
7 Dallas, Texas — October 22-24
8 Los Angeles, California — November 8-10
9 San Francisco, California — November 19-21
10 Denver, Colorado — December 3-5

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Note - Because of limited space availability, an early reservation is recommended to assure you of space.

Creative Computing Annual Award

Saturday, noon-12:15pm — *Room 2*

David Ahl, Publisher
Creative Computing Magazine
Box 789-M
Morristown NJ 07960

Softalk Software Award

Saturday, 12:15pm-12:30pm — *Room 2*

Margot Comstock Tommervik, President
Softalk, Inc.
10432 Burbank Blvd
N.Hollywood CA 91601

Applied Computer Graphics

Saturday, 12:30pm–2pm — *Room 1*

Coordinator: Jerri Jenkins

Microcomputer Production of Animated Maps
John E. Westfall, Prof. Dept of Geography
San Francisco State University
1600 Holloway Ave
San Francisco CA 94132

COMANDER I - COMposition of Artwork aNd Document Editing and Report Generation System
Jim Blum
Comagraph
768 Inwood Dr
Campbell CA 95008

Dedicated Document Production
Sidney Levin, M.D.
930 Noriega St
San Francisco CA 94122

TeleComputing for Everyone

Saturday, 12:30pm-2pm — *Room 2*

Coordinator: Mark Cummings

Videotex and Teletext: Computer Graphics Today, Tomorrow Television
Jerry Borrell
Congressional Research Service
The Library of Congress
Washington D.C. 20540

Local Networking For Small Systems
Douglas W. Gage
TNW Corporation
3351 Hancock St
San Diego CA 92110

Telematique: The First Universal Communications Terminal
Mark Cummings, Assistant Prof.
Broadcast Comm. Dept.San Francisco State Univ.
1600 Holloway Ave
San Francisco CA 94132

Images of Computers: Great Graphics

Saturday, 2pm–3:30pm — *Room 1*

Coordinator: Ted Perry

Microprocessors in Image Processing
Gregory A. Baxes
Micro-Imaging
8405 E. Hampden No.13B
Denver CO 80231

4 Billion Colors on the Apple??
Ted Perry KYDE TYME Project
San Juan Unified School District
6141 Sutter St
Carmichael CA 95608

Tutorial: LISP and More LISP

Saturday, 1pm-4pm — *LISP Tutorials Room*

Coordinator: John Allen

LISP and more LISP - Tutorial
J. Allen
The LISP Company
Box 487
Redwood Estates CA 95044

Unusual Computer Applications

Saturday, 2pm-4pm — *Room 2*

Coordinator: Frederic E. Davis

Computers and Horticulture
Frederic E. Davis
Box 11787
San Francisco CA 94101

Mini-Computer Applications in Antitrust Litigation
David Bradwell
2227 Lombard St
San Francisco CA 94123

Autospec and Autocast: Book and Booklet Design and Castoff By Computer
Stanley Rice, Art Director
Brooks/Cole Publishing Co
555 Abrego St
Monterey CA 93940

Computer Generated Crossword Puzzles
Chuck Adams
North Texas State University
Dept. of Computer Science, Box 13886
Denton TX 76203

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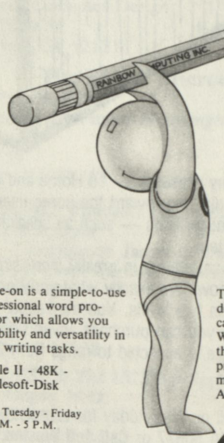

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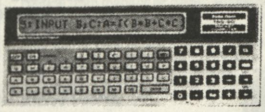
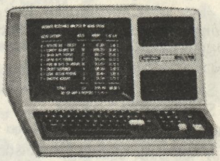


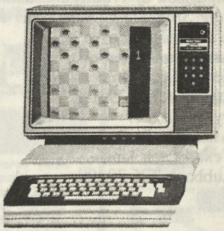
26-3501 1.9K P.C.....$221.00
26-3503 Cassette IF.....45.00
14-812 Recorder.....72.00

MODEL III



26-1061 4K I.....$629.00
26-1062 16K III.....865.00
26-1063 32K III
W/2 Drives, RS232.....2225.00

COLOR



26-3001 4K.....$353.00
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Unusual Computer-Aided Instruction Environs

Saturday, 1:30pm–3pm *Room 415*

Coordinator: Dee LaMont Johnson

Personal Computer Assisted Instruction in Music
Wolfgang Kuhn
Department of Music
Stanford University
Stanford CA 94305
Paul Lorton, Jr.
University of San Francisco
San Francisco 94117

Microcomputer Assisted Instruction in Psychology
Philip L. Hartley, Ph.D.
Associate Professor of Psychology
Chaffey College
Alta Loma CA 92507

A Comparison of Traditional and Computer-based Methods of Teaching Students to Administer Individual Intelligence Tests
Dee LaMont Johnson
Assosiate Professor
Texas Tech University
Lubbock TX 79409
Jerry Willis
Associate Professor
Texas Tech University
Lubbock TX 79409

Micro-Based Data Bases

Saturday, 4pm-5:30pm *Room 2*

Coordinator: Charles N. Adams

D B Master: A Sophisticated Data Base Management System for the Apple II
Barney Stone
Stoneware
1930 Fourth St
San Rafael CA 94901

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Low-Cost Computing in Education Systems (Part I)

Saturday, 3pm-4:30pm *Room 415*

Coordinator: Eugene J. Muscat

Personal Computers in Educational Administration
Eugene J. Muscat
University of San Francisco
San Francisco CA 94117
Paul Lorton, Jr.
University of San Francisco
San Francisco CA 94117

Competency Exams and Micro Computers
Leonard T. Meuer
Travis Unified School Dist
DeRonde Drive
Travis AF Base CA 94535

Purchasing Microcomputer System Components From Two Vendors Considered Dangerous
Ronald S. Lemos, Professor
Department of Business Information Sys
California State University
Los Angeles CA 90032

Extravaganza: Video Graphics

Saturday, 3:30pm–6pm *Room 1*

Coordinator: Arron Marcus

Computing for the Right Brain
Fred H. Lakin
Media Design Associates
915 Hobart St
Menlo Park CA 94025

Computer Graphics and Computer Design
Arron Marcus
Staff Scientist
Lawernce Berkeley Laboratory
Berkeley CA 94708
Christopher Keith & Michael Arent
Graphic Designers
Meta-Graphics
Berkeley CA 94708

Creative Futuristics
Howard Pearlmutter
Graphics Gathering
Box 8222
Los Altos CA Stanford CA 94305

Low-Cost Computing in Education Systems (Part II)

Saturday, 4:30pm–6pm *Room 415*

Coordinator: David K. Mosow

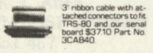
The Microcomputer and Management of the Time Bound Educational Program
David K. Mosow
Coll of Education ILB-301
University of South Alabama
Mobile, AL 36688
Frank Turner
Mobile County Public Schools
Mobile AL 36601

Justifying the Cost of Microcomputers in the Classroom - A Problem in BASIC Math
Madeline Fish
Grant High School
Sacramento CA 95838
Brian Sakai
Box 787
Palo Alto CA 94302

TRS-80 SERIAL I/O

• Can input into basic • Can use LLIST and LPRINT to output, or output continuously • RS-232 compatible • Can be used with or without the expansion bus • On board switch selectable baud rates of 110, 150, 300, 600, 1200, 2400, parity or no parity odd or even, 5 to 8 data bits, and 1 or 2 stop bits. D.T.R. line • Requires +5, -12 VDC • Board only $19.95 Part No. 8010, with parts $76.69 Part No. 8010A, assembled $98.25 Part No. 8010 C. No connectors provided, see below.

EIA/RS-232 connector Part No. DB25P $6.00, with 9' 8 conductor cable $19.65 Part No. DB25P9.



3' ribbon cable with attached connectors to fit TRS-80 and our serial board $37.10 Part No. 3CAB40.

VIDEO TERMINAL

16 lines, 64 columns • Upper and lower case • 5x7 dot matrix • Serial RS-232 in and out with TTL parallel keyboard input • On board baud rate generator 75, 110, 150, 300, 600, & 1200 jumper selectable • Memory 1024 characters (7-21L02) • Video processor chip SFF96364 by Necu-lonic • Control characters (CR, LF, →, ←, ↑, ↓, non destructive cursor, CS, home, CL • White characters on black background or vice-versa • With the addition of a keyboard, video monitor or TV set with TV interface (part no. 107A) and power supply this is a complete stand alone terminal • also S-100 compatible • requires +16, & −16 VDC at 100mA, and 8VDC at 1A. Part No. 1000A $296.45 kit.

GAME PADDLES & SOUND FOR TRS-80

Includes: 2 game paddles, interface, software, speaker, power supply, full documentation including: schematics, theory of operation, and user guide; plus 2 games on cassette, Pong and Starship War $157.29 Complete Part No. 7922C

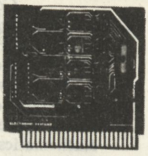
SERIAL/ PARALLEL INTERFACE

• Converts serial to parallel and parallel to serial • Low cost on board baud rate generator • 110 to 19.2K • Low power drain +5 volts and -12 volts required • TTL compatible • All characters contain a start bit, 5 to 8 data bits, 1 or 2 stop bits, and either odd or even parity. • All connections go to a 44 pin gold plated edge connector • Board only $11.95 Part No. 101, with parts $42.89 Part No. 101A, 44 pin edge connector $4.00 Part No. 44P

MODEM

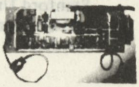
• Type 103 • Full or half duplex • Works up to 300 baud • Originate or Answer • Serial TTL input and output • connect 8 Ω speaker and crystal mic. directly to board • Requires +5 volts • Board only $7.60 Part No. 109, with parts $29.95 Part No. 109A.

OPTO-ISOLATED PARALLEL INPUT BOARD FOR APPLE II



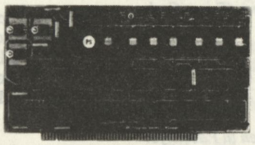
There are 8 inputs that can be driven from TTL logic or any 5 volt source. The circuit board can be plugged into any of the 8 sockets of your Apple II. It has a 16 pin socket for standard dip ribbon cable connection. Board only $15.65 Part No. 120, with parts $69.95. Part No. 120A.

SUPER MODEM



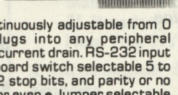
Originate, RS-232 and 20 mA compatable. Full duplex, and half duplex, direct connect or acoustic coupled, on board power supply, carrier detect light, DB25 plug, 300 BAUD, Type 103 compatable frequencies. Bare board Part No. 2000 $21.89, Kit Part No. 2000A $133.80

8K EPROM SAVER



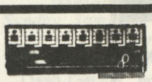
• Programs 2708's address relocation of each 4K of memory to any 4K boundary • Power on jump and reset jump option for "turnkey" systems and computers without a front panel • Program saver software in 1 2708 EPROM $25. Bare board $45.59 including custom coil, board with parts but no EPROMS $164.69.

APPLE II SERIAL I/O INTERFACE



Baud rate is continuously adjustable from 0 to 30,000 • Plugs into any peripheral connector • Low current drain. RS-232 input and output • On board switch selectable 5 to 8 data bits, 1 or 2 stop bits, and parity or no parity either odd or even • Jumper selectable address • SOFTWARE • Input and Output routine from monitor or BASIC to teletype or other serial printer • Program for using an Apple II for a video or an intelligent terminal. Also can output in correspondence code to interface with some selectrics. • Also watches DTR • Board only $14.95 Part No. 2, with parts $51.25 Part No. 2A, assembled $62.95 Part No. 2C

PARALLEL TRIAC OUTPUT BOARD FOR APPLE II



This board has 8 triacs capable of switching 110 volt 6 amp loads (660 watts per channel) or a total of 5280 watts. Board only $15.65 Part No. 210, with parts $119.95 Part No. 210A

APPLE II PROTOTYPING HOBBY/CARD

Part No. 7907 $21.95

RS-232/20mA INTERFACE

This board has two passive, opto-isolated circuits. One converts RS-232 to 20mA, the other converts 20mA to RS-232. All connections go to a 10 pin edge connector. Requires +12 and -12 volts. Board only $9.95, part no. 7901, with parts $14.95 Part No. 7901A.

T.V. INTERFACE

• Converts video to AM modulated RF, Channels 2 or 3. So powerful almost no tuning is required. On board regulated power supply makes this extremely stable. Rated very highly in Doctor Dobbs' Journal. Recommended by Apple • Power required is 12 volts AC C.T., or +5 volts DC • Board only $9.19 part No. 107, with parts $18.85 Part No. 107A

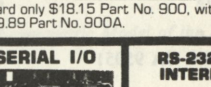
TAPE INTERFACE

• Converts a low cost tape recorder to a digital recorder • Works up to 1200 baud • Digital in and out are TTL-serial • Output of board connects to mic. in of recorder • Earphone of recorder connects to input on board • No coils • Requires +5 volts, low power drain • Board only $7.60 Part No. 111, with parts $29.95 Part No. 111A

RS-232/TTL INTERFACE

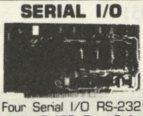
• Converts TTL to RS-232, and converts RS-232 to TTL • Two separate circuits • Requires -12 and +12 volts • All connections go to a 10 pin edge connector, kit $9.95 Part No. 232A 10P needge connector $3.00 part No. 10P.

S-100 BUS ACTIVE TERMINATOR



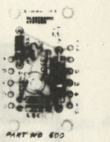
Board only $18.15 Part No. 900, with parts $29.89 Part No. 900A.

SERIAL I/O



Four Serial I/O RS-232 ports. S-100 Bus, Software or jumper selectable baud rate (110, 300, 600, 1200, 2400, 4800, 9600, 19.2K), on board Xtal baud rate generator, Addressing, switch selectable, Parity or no parity (odd or even) switch selectable, 1 or 2 stop bits, 5 to 8 bits/character. Board only $35.19 Part No. 7908. With parts (kit) $199.95, Part No. 7908A.

RS-232/TTY INTERFACE



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Saturday, 3:30pm–6pm — *Room 400*

Coordinator: James L. Gange, M.D.

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Organic Software
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Panel: Experiences with Computers in Education

Saturday, 5:30pm-6:30pm — *Room 2*

Coordinator: Fred Waters

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Sunday, 10am–12:30pm — *LISP Tutorials Room*

Coordinator: Lois Patricia Flynne

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Lois Patricia Flynne, Ph.D., Prof Info Sci
San Francisco State University
1600 Holloway Ave
San Francisco CA 94132

Michael Burke, Assoc. Prof.
Mathematics & Computer Science
San Jose State University
San Jose CA 95192

Tom Davis
Stanford University
1055 Sonoma Ave
Menlo Park CA 94025

Open Meeting: PROTEUS

Sunday, 10am–noon — *Room 415*

Coordinator: Stan Sokolov

Processor Technology (Sol) Users Group

Stan Sokolow
PROTEUS
1690 Woodside Rd No.219
Redwood City CA 94061

Open Meeting: Digital Group Users

Sunday, 10am-noon — *4th Floor Meetings Room*

Coordinator: Jim Jacobsen
NORCAL DG Users Group
760 Paul Ave
Palo Alto CA 94308

Anarchistic Gathering: TRS-80 Users

Sunday, 10am-noon — *Room 1*

Coordinator: (no leadership)

a "no host" opportunity for users to exchange news & views

Anarchistic Gathering: Apple Users

Sunday, 10am–noon — *Room 2*

Coordinator: (no leadership)

a "no host" opportunity for users to exchange news & views

Anarchistic Gathering: Commodore Pet Users

Sunday, 10am–noon — *Room 400*

Coordinator: (no leadership)

a "no host" opportunity for users to exchange news & views

Open Meeting: Mensa Apple Group

Sunday, noon–1pm — *4th Floor Meetings Room*

Coordinator: Rick Kershner

San Francisco Mensa Apple Group

Rick Kershner
San Francisco Mensa Apple Group
2308 Pauline Dr No.C
San Jose CA 95124

Demonstration: RTTY (Radio Teletype)

Sunday, noon-5pm *Room 401*

Coordinator: Stuart Neblett

Amateur Communications Society (RTTY) Open Seminar & Demonstration

Amateur Communications Society
493 4th Ave
Redwood Ctiy CA 94063

The BASIC How To

Sunday, noon–2pm *Room 2*

Coordinator: Richard Mateosian

Programming With Free BASIC

Richard Mateosian
2919 Forest Av
Berkeley CA 94705

Programming Data Files in Basic

LeRoy Finkel
1815 Altschul Ave
Menlo Park CA 94025

Jerald R. Brown
Seabastopol CA 94025

The BASIC Why Not

Sunday, 2pm–2:30pm *Room 2*

The Bankruptcy of Basic

John R. Allen
The LISP Company
Box 487
Redwood Estates CA 95044

For the Novice: Computer Literacy – An Introduction to Computing

Sunday, 1pm–2pm *Room 1*

Coordinator: Tony Severa

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Tutorial: LISP and More LISP

Sunday, 1pm-4pm *LISP Tutorials Room*

Coordinator: John Allen

LISP and more LISP - Tutorial

J. Allen
The LISP Company
Box 487
Redwood Estates CA 95044

The Osborne White Elephant Award

Sunday, 2pm–2:30pm *Room 1*

The Osborne White Elephant Award for Outstanding Microcomputing in 1980

Adam Osborne, President
Osborne Computer Corp.
26500 Corporate Dr
Hayward CA 94545

Open Meeting: Computer Dealers & Retailers

Sunday, noon–1pm *Room 1*

Coordinator: Bob Moody

Open Meeting: Computer Dealers & Retailers

Bob Moody
Alpha Information
800 San Antonio Rd
Palo Alto CA 94303

Legal Safeguards & Software

Sunday, noon–2pm *Room 400*

Coordinator: Susan Nycum

Software Protection—Legal Fact or Fable

David B. Harrison
Owen, Wickersham & Erickson, P.C.
433 California St No.1100
San Francisco CA 94104

Panel: Legal Safeguards for Software Developers and Users

Susan Nycum
Gaston, Snow & Ely Bartlett
550 Hamilton Ave
Palo Alto CA 94301

Mike Kane
Apple Computer Inc
10260 Bandley Dr
Cupertino CA 95014

Mark Spohr, M.D.
Medsoft
Box 7049
Tahoe City CA 95730

Micros & Money

Sunday, 2pm–3pm *Room 400*

Coordinator: Paul M. Armetta

Standard & Poor's Stockpack System–Using a Stock Market Data Base and Portfolio Management System for Investment Purposes

Harvey E. Pearlman, Pub. Special Electronic Products
Standard & Poor's Corp
25 Broadway
New York NY 10004

A Microcomputer Based Econometric Model of the U.S. Economy

Dr. David M. Chereb
McCulloch Corporation
Box 92180
Los Angeles CA 90009

Macrocosmic Views of Microcomputing

Sunday, 3pm–5pm *Room 400*

Coordinator: Lois Patricia Flynne

Toward an Electronic Bill of Rights

Dean Gengle
Smith & Gengle
Box 14431
San Francisco CA 94114

LISP, GREEK and ARETE: Musings on a Classical Education for the Computer Age

Lois Patricia Flynne, Ph.D., Prof. Info. Sci.
San Francisco State Univ
1600 Holloway Ave
San Francisco CA 94132

Computerization, Communication and Organization Theory

Paul M. Armetta, Ph.D.
Hood and Strong CPA
555 California St No.3280
San Francisco CA 94104

Information Planning for Management Planning

Sunday, noon–1pm *Room 415*

PERT/CPM Network Analysis - Management Planning & Project Management

Dennis Starkovich
Box 50383
Palo Alto CA 94303

Computers in Medical Practice

Sunday, 1pm–3:30pm *Room 415*

Coordinator: James L. Gange, M.D.

Evaluation and Design of Software for the Private Practice Physician

Allan Lundell
Medical Communications Network, Inc.
Box 661
Ross CA 94957

A Psycholigist's Wish List for Small Computers in Health Care

David E. Bresler, Ph.D., Dir.
Bresler Center for Allied Theraputics
12401 Wilshire Blvd
Los Angeles CA 90025

Computer Medicine and the Society for Computer Medicine

Neal Koss, M.D.(past president)
Society for Computer Medicine
3440 Lomita Blvd No.452
Torrance CA 90505

An Update on SOFTDOC: A Disk-Based Medical Computer Journal & Network

James L. Gagne, M.D.
Datamed Research
1433 Roscomare Rd
Los Angeles CA 90024

Micro COSTAR: An Outpatient Medical Record System

Larry Stoneburner, M.D. Assoc. Clinical Prof.
OBGYN Department
University of California, Irvine
Irvine CA 92683

Computing in the Physician's Office

Sunday, 3:30pm–5pm *Room 415*

Coordinator: F. Berkenbile, Ph.D.

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La Crescenta CA 91214

Selecting a Desktop Computer for Your Medical Office

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Medsoft
Box 7049
Tahoe City Ca 95730

Going FORTH

Sunday, 2:30pm–5pm *Room 2*

Coordinator: Samuel B. Bassett

FORTH Conceptual Introduction

John S. James
Box 348
Berkeley CA 94701

A Guided Tour Through the fig-FORTH Model

William F. Ragsdale
Forth Interest Group
Box 1105
San Carlos CA 94070

What is FORTH?

Henry Laxen
1259 Cornell
Berkely CA 94706

FORTH – the System Tool

Samuel B. Bassett
1010 Ashbury No.4
San Francisco CA 94117

Software Quality and FORTH Programs

Kim R. Harris
FORHTRIGHT ENTERPRISES
Box 50911
Palo Alto CA 94303

The Computer Business

Sunday, 2:30pm–5pm *Room 1*

Coordinator: Sharon Rosa

Microcomputer Tunnel Vision or Why I Designed and Built a New Microcomputer

Adam Osborne, President
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Magazine

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Interface systems for IBM selectric typewriter

Ex-Cell-O Corp./Remex Division 1505C
1733 Alton Av
Irvine CA 92714

Exatron Corp. 1519C,1521
181 Commercial St
Sunnyvale CA 94086

Exidy Systems, Inc. 2106C
1234 Elko Dr
Sunnyvle CA 94086
Sorcerer computer products

Forth Interest Group 1137C
Box 1105
San Carlos CA 94070
FORTH language materials & information

Friends Software 1510
2020 Milvia St #440
Box 527
Berkeley CA 94704
Access/80: information management system

G and G Engineering M3
2806 Marina Blvd #5
San Leandro CA 94577

Go Forth >> 67
504 Lakemead Way
Redwood City CA 94062
Forth systems & application software & consulting services

Graphics Gathering 2111
the computer visuals club
Box 8222
Stanford CA 94305
Visuals: Computer-graphic puzzles (Shmuzzles), shirts, art & animation on display

H & E Computronics, Inc. 608C,610,612,614C
Box 149
New City NY 10977
Newsletter & software for TRS-80 owners

H One Computer Sales 52
3388 Stevens Creek Blvd
San Jose CA 95117
S-100, CP/M systems

Hayden Book Co. 617C,619
50 Essex St
Rochelle Park NJ 08817

Heath Co. 221C,223,225,227C
Hilltop Rd
Benton Harbor MI 49022

Hefte Industries, Inc. 2303C,2304
17465A Shelburne Way
Los Gatos CA 95030

Hobby World Electronics 1111Q
19511 Business Center Dr
Northridge CA 91324

Horsetrader Magazine 05
Box 11712
Santa Ana CA 92711
Trade publications for printing, photographic, & computer industries

Houston Instrument 1226C,1228
8500 Cameron Rd
Austin TX 78753

Howard Industries, Inc. 319
2051 E. Cerritos Av Bldg 8C
Anaheim CA 92806

Howard W. Sams & Co., Inc. 1126C,1128
4300 W 62nd St
Box 7092
Indianapolis IN 46206
Microcomputer books, software & custom publishing

Huntington Computing 31
2020 Charles
Corcoran CA 93212
Discount computer software and hardware

IBM Corp. 1218C
4111 Northside Pkwy
Atlanta GA 30055
5120 small business computers

Imsai Computer Division 1343C,1345
910-81st Av Bldg 14
Oakland CA 94621
Imsai 8080, S-100 products

Independent Business Systems 2001C
1328 Concannon Blvd
Livermore CA 94550
Multi-user, multi-tasking, multi-processor computer systems & software

Information Unlimited Software 224C
281 Arlington Av
Berkeley CA 94707
Software

InfoWorld 1236C,1234
530 Lytton Av
Palo Alto CA 94301

Innovative Data Technology 2302C
4060 Morena Blvd
San Diego CA 92117

Intelligent Systems Corporation 2215,2217
225 Technology Park/Atlanta
Norcross GA 30092
Computer augmented teaching system for the 80's

Interactive Fiction 25
Box 603
Inverness CA 94937

Interface Age Magazine 627Q
16704 Marquardt Av
Cerritos CA 90701
Magazines & books

Island Cybernetics 33
Box 208
Port Aransas TX 78373
Information retrieval system for CP/M, magazine article data base

Ithaca Intersystems 312,411,314C,413C
Box 91
Ithaca NY 14850
DPS-1, Z80, Pascal/Z, disk drives, Cache BIOS

Jade Computer Products 1103H
4901 W. Rosecrans
Hawthorne CA 90250

Jaffe, David M9
Rehab Eng R&D PA VA Med Ctr
3801 Miranda (153)
Palo Alto CA 94304
Videotape: Help for the handicapped

Japan Microcomputer Club 405C
Rm 313
3-5-8, Shibakoen, Minato-ku
Tokyo 105 JAPAN
Micom circular, exhibit of club projects

JDR Microdevices, Inc. 1801B
1101 S. Winchester Blvd
San Jose CA 95128
Electronic components & accessories

John Bell Engineering 317C
Box 338
Redwood City CA 94064

John Wiley & Sons, Inc. 1405C,1407
605 3rd Av
New York NY 10016
Professional, scientific & technical books, journals, & self-teaching guides

Johnson Associates Software 66
Box 1402
Redding CA 96099
TRS-80 computer software for Mod I,II,III

Kilobaud Microcomputing & 80 Microcomp. 1011,1013C
80 Pine St
Peterborough NH 03458
microcomputing magazines

LAX Computer Products 1351C,1450C
4728 Manhattan Beach Blvd
Lawndale CA 90260

Lazer Micro Systems, Inc. 2213
Box 55518
Riverside CA 92517

Lear Data Corp. 2105C
3273 Claremont Way #203
Napa CA 94558
Tri-Star business system for Cromemco computers

Lifeboats Associates 1220
1651 3rd Ave
New York NY 10028

Lifetime Learning Publications 1648
10 Davis Dr
Belmont CA 94002
Books

LNW Research Corporation 2221C
14661-C Myford Rd
Tustin CA 92680
LNW80 System & PCB

Lobo Drives International 1518C,1419C
935 Camino Del Sur
Goleta CA 93017
Floppy and fixed disk drive subsystems

LPS, Inc. 69
610-D Quarry Rd
Belmont CA 94002
Local parcel service

Macrotronics, Inc. 1130
1125 N. Golden State Blvd #G
Turlock CA 95380
Hardware/software products for TRS-80, Apple, Atari, Pet, Sorcerer

Magnolia Microsystems 20
2812 Thorndyke Av W
Seattle WA 98199
Add-on products for Zenith & Heath (hard disks; memory; CP/M; software, etc.)

Marin County TRS-80 Users Group 1028
Box 895
Novato CA 94948

Marinchip Systems 1423C
16 St Jude Rd
Mill Valley CA 94941
16-bit multiuser computer system

Matthew Jew & Eric Kilk 34
2419 Durant #21
Berkeley CA 94704
Hypersort, Apple software, programming services

Mauro Engineering 1632
Rt 1, Box 133
Mt. Shasta CA 96067
X-Y plotters

McGraw-Hill Book Co. 517C
1221 Av of the Americas
New York NY 10010
Books on computer technology

Measurement Systems & Controls 1526C,1528
1601 W. Orangewood Ave
Orange CA 92668
Sophisticated OEM S-100 boards & systems

Merrill Lynch, Pierce, Fenner & Smi 1708
95 S. Market St #220
San Jose CA
95113
Investments and financial services

Micro Business Associates 1444
500 Second ST, 2nd Floor
San Francisco CA 94107
Legal word processing systems; small office computer systems

Micro Business Systems 30
18325 Vanowen St #34
Reseda CA 91335

Micro Data Base Systems, Inc. 1613C
Box 248
Lafayette IN 47902
Network data-base software products for numerous microcomputers

Micro-Expander, Inc. 1736C
6835 W. Higgins Ave
Chicago IL 60656
EXPANDER, micro-computer

Micro Focus, Inc. 213
1601 Civic Center Dr
Santa Clara CA 95050
CIS Cobol and Forms 2

MICRO: The 6502 Journal 1543C
Box 6502
Chelmsford MA 01824
MICRO:The 6502 journal; & books entitled The Best of MICRO & Micro/Apple

Micro Mainframes 1531,1533
714 Alhambra Blvd
Sacramento CA 95816
5 1/4" mini Winchester disks, TRS-80 Model III disk controller, Corvus dealer

Micro Marketing 65
2341 San Pablo Ave
Oakland CA 94612

Micro Matrix 29
Box 938
Pacifica CA 94044

Micro-Ap, Inc. 215C
7033 Village Pkwy #206
Dublin CA 94566
Selector IV (application processor), SBASIC (enhanced structured BASIC compiler)

MicroAce 57
1348 E. Edinger
Santa Ana CA 92705
MicroAce microcomputer

MicroAge 412,414C,511,513C
1425 W 12th Pl
Tempe AZ 85281

MicroApplications Associates 36
1704 Virginia Way
Arcata CA 95521
Microcomputer to phototypesetter interface

Microbyte Computer Systems 201B
2626 Union Av
San Jose CA 95124
Hardware, software, service

Microcomputer Consultants 210
1623-A 5th St
Box T
Davis CA 95616
Business software, turnkey business systems

Microcomputer Information Services 47
2464 El Camino Real #247
Santa Clara CA 95051
Microcomputer Index (quarterly publication)

Microcomputer Technology, Inc. 1426C
3304 W.Mac Arthur Blvd
Santa Ana CA 92704

MicroDaSys, Inc. 1112C
Box 36051
Los Angeles CA 90036
Millie microsystem, S-100 products, software house, business, medical & dental s

Microed 24
3910 Bandini St
San Diego CA 92103
TRS 80 Model II/CP/M business software

Micromation, Inc. 1005C,1007
1620 Montgomery
San Francisco CA 94111
Moduler, multi-CPU M/NET business computer system

Microperipheral Corp. 1522C
2643 151st Pl NE
Redmond WA 98052
Direct connect modems for microcomputers

MicroPro International Corp. 321,323C
1299 4th St
San Rafael CA 94901
MicroPro,designs,manufacturers & markets microprocessor-based software & hardwar

Microsoft 306C,308,310
Microsoft Consumer Products
400 108th Ave NE #200
Bellevue WA 98004

Minis & Micros, Inc. 48
29486 Trailway Ln
Agoura CA 91367
4116 memory chips, Tandon disc drives, EPSON, & Base 2 printers

Microcomputer Industry Trade Association 1016
1143 Crane #208
Menlo Park CA 94025

Mitchell E. Timin Engineering Co. 50
9575 Genesee Ave #E2
San Diego CA 92121
FORTH for CP/M systems

Morrow Designs 1550C,1451C
5221 Central Ave
Richmond CA 94804
Multi-user microcomputer system and peripheral

Mountain Computer, Inc. 1623C
300 Harvey West Blvd
Santa Cruz CA 95060

MQI Computer Products 107,108
2615 Miller Av
Mtn View CA 94041

MT MicroSystems 1608
1562 Kings Cross Dr
Cardiff CA 92007
Pascal/MT+ Compilers

MuSYS Corp. 1734
1451 E. Irvine Blvd #11
Tustin CA 92680
Multi-user microsystems, S-100 distributed processor boards

Nepenthe Programs 42
3014 Biggs Ct
National City CA 92050
TRS-80 Model 1 & Model 3 business software

Nordic Systems 209C
4170 Gross Rd
Capitola CA 95010
Dynavit computerized cardiovascular conditioning systems

North Star International Users Association 1022
1261 Lancashire Dr
Concord CA 94518
Newsletter, The COMPAS

Northwest Digital 1548
668 S. Sunset Blvd
West Covina CA 91790
Word processing software

Novation, Inc. 1631,1633
18664 Oxnard St
Tarzana CA 91356
Modems & telephone communications terminals

Novell Data Systems 1436C
1170 N. Industrial Pk Dr
Orem UT 84057
Computer systems

Omnico Computer Corporation 2121C
3300 Buckeye Rd
Atlanta GA 30341

Omnigraphics 60
208 Diamond St
San Francisco CA 94114

On-Line Systems 1432
36575 Mudge Ranch Rd
Coarsegold CA 93614
Hi-Res Adventure,Paddle/Tablet-Graphics

Optimized Systems Software 46
10379 Lansdale Ave
Cupertino CA 95014
CP/A (an operating system) and Basic A+ for Atari & Apple

Oracle Electronics & Trading Co. 1446
467 Hamilton #22
Palo Alto CA 94301
Systems, peripherals, components

Orange Micro, Inc. 1622C
3150 E. La Palma #I
Anaheim CA 92806
Small computer printers

Organic Software 1430
1492 Windsor Wy
Livermore CA 94550

Orthocode Corp. 1536C,1437C
Box 6191
Albany CA 94706

Osborne Computer Corp. 1612C,1513C,1610,1511
26500 Corporate Dr
Hayward CA 94545

Osborne/McGraw-Hill 518C,520
630 Bancroft Wy
Berkeley CA 94710
Microcomputer books & software

OSM Computer Corporation 1635
2364 Walsh Ave
Santa Clara CA 95051
OSM multi-user system

Pacific Exchanges 1106
Box 172
San Luis Obispo CA 93401
Computer diskettes, computer tape, cartridges, disk file systems, headcleaning kits

Pacific Mountain States (PMS) 1122C
6319-B DeSoto Ave
Woodland Hills CA 91367
Data communications & terminal products

Pan American Electronics 2116
1117 Conway
Mission TX 78572
Radio Shack TRS-80's

Panamax 13
150 Mitchell Blvd
San Rafael CA 94903
Voltage surge protector

Passport Designs, Inc. 1812C
Box 478
La Honda CA 94020
SOUNDCHASER (Music Synthesizer); SOFTBUS (Apple Expander)

Patrick & Co. 1021
560 Market St
San Francisco CA 94104
Infotec computers & peripheral supplies

Peachtree Software 2120,2122C
3 Corporate Square #700
Atlanta GA 30329
Business applications packages

People's Computer Company 109
1263 El Camino
Box E
Menlo Park CA 94025
Dr Dobb's Journal, Recreational Computing, PCNET, Computertown USA!

Percom Data Co., Inc. 1805,1806
211 N. Kirby
Garland TX 75042
Peripherals for the TRS-80 Model 1 & Model 3

Performance Software Corp. 1433,1435
1322 Webster #402
Oakland CA 94612
Total systems sales, service, training and support

Personal Computer World 2115
14 Rathbone Pl
London W1P 1DE ENGLAND

Personal Micro Computers, Inc. 600B
475 Ellis St
Mtn View CA 94043
PMC 80 Computer & accessories, Add-on-80 products for TRS-80 & Microsette cassette

Personal Software, Inc. 506C,508,510
1330 Bordeaux Dr
Sunnyvale CA 94086
Software for Apple, Pet, TRS-80, Atari, etc...

Phase One Systems, Inc. 1443C
7700 Edgewater Dr #830
Oakland CA 94621
Oasis, single/multi user op system, ACCESS relational data base management syste

Philips Test & Measurements 1222C
489 Valley Way
Milpitas CA 95035

Prentice-Hall, Inc. 211
Englewood Cliffs NJ 07632

Priority One Electronics 507,509
16723 Roscoe Blvd
Sepulveda CA 91343

Professional & Technical Consultants Assn. 1008
1190 Lincoln Ave #3
San Jose CA 95125
Independent consulting services

Programma International, Inc. 318C,320,417C,419
2908 N. Naomi St
Burbank CA 91504

Prosoft Medical Billing 08
3604 Foothill Blvd
La Crescenta CA 91214
Medical billing

Proteus 1448
Processor Technology Users
1690 Woodside Rd #219
Redwood City CA 94061
Newsletter & software for users of Processor Technology computers (Sol, Helios, etc.)

Purchasing Agent 1442C
1635 School St #101
Moraga CA 94556

Purser's Magazine 26
Box 466
El Dorado CA 95623
Guide to family computers

Q.T. Computer Systems, Inc. 1347,1349
15620 Inglewood Ave
Lawndale CA 90260

Quality Software 206C,208
6660 Reseda Bl #103
Reseda CA 91335

Quest Electronics 322,324C
2322 Walsh Av
Santa Clara CA 95051

R.H. Electronics 39
566 Irelan Dr
Buellton CA 93427
Super RAM II SuperSer II for Apple computers

Radio Shack 1303H
1291 E. Hillsdale Bl #211
Foster City CA 94404
TRS-80

RCA MicroComputer Products 620C,622,624,626C
New Holland Pike
Lancaster PA 17604

RCI Computer Services 1024
701 High St #214
Auburn CA 95603

Real Computing M8
1553 Via Leon
Box 7000
Palos Verdes Estates CA 90274

Reston Publishing Company, Inc. 1542C
11480 Sunset Hills Rd
Reston VA 22090
Books

Ribbon House 15
Box 645
San Carlos CA 94070
Ribbons for computers, word processors & typewriters

Robotics Age Magazine 35
Box 801
La Canada CA 91011

Rochester Data, Inc. 1742C
3000 Winton Rd South
Rochester NY 14623

Rothenberg Information Systems 522
260 Sheridan Av
Palo Alto CA 94306

Runic Project M7
29335 Pine Tree Dr
Southfield MI 48076
System type tools

S-100 Computer Design & Cnslt Corp. 32
Box 367
Cupertino CA 95014
Custom system design & consulting

S.pee.k uP Software 21
3491 River Way
San Antonio TX 78230
6502 phonetic software for unlimited vocabulary with TI Speak & Spell

San Francisco Apple Core 1720
1515 Sloat Blvd #2
San Francisco CA 94132
Apple users group (non-profit)

Scientific Enterprises, Inc 1634
9375 S.W. Commerce Circle
Wilsonville OR 97070
XM-80, software components

Sebree's Home Computers 1331
456 Granite Av
Monrovia CA 91016

Select Information Systems, Inc. 1830B
919 Sir Francis Drake Blvd
Kentfield CA 94904
Select - The Word Processor

Shafer Software 1644
749 W. Fremont Ave #B
Sunnyvale CA 94087
Software

Shasta General Systems 1604C,1606
1329 Moffett Park Dr
Sunnyvale CA 94086
Xerox line of Diablo small business computers

Sigma Sales, Inc. 2205C
6505C Serrano Ave
Anaheim Hills CA 92807

Signum Systems 37
726 Santa Monica Blvd
Santa Monica CA 90401
In-circuit emulator for MCS48

Silverman Associates 1811
4010 Opal St
Oakland CA 94609
Money Maestro, Oasis, Basic, Northshare multiuser Northstar software

Sinclair Research Ltd. 1027C
50 Staniford St
Boston MA 02114
Personal computer

Sirius Software, Inc. 1127C
2011 Arden Way #225A
Sacramento CA 95825

Skyles Electric Works 1418C
231E S. Whisman Rd
Mtn View CA 94041

Small Business Applications, Inc. 1636C
3220 Louisiana #203
Houston TX 77006
Magic Wand word processing system

Softape 1704C
10432 Burbank Blvd
N. Hollywood CA 91601
Crosswords; Forth II. Apple & Atari Software; Magic Window (word processing system)

Softech International Corp. 1649,1651C
#6, 144 W. 15th St
N Vancouver BC V7M 1R5 CANADA
Stockfile (inventory control), point of sale, hard disc multi-user Apples

Softsel, Inc. 1133
4079 Glencoe Ave
Marina del Rey CA 90291
Wholesale software & hardware products

Software Concepts 1009
2608 Landershire
Plano TX 75023
Special delivery word-processing software

Software Express 1232
2615 Miller Av
Mtn View CA 94041
Software distributor

Sorcim 1427C
1333 Lawrence Expy #418
Santa Clara CA 95051
Pascal/M, ACT I, ACT II, Act III, Trans 86

Source Telecomputing Corp. 1530,1532
1616 Anderson Rd
McLean VA 22102
The Source - America's information utility

Southwestern Data Systems 1420
10159-G Mission Gorge Rd
Santee CA 92071
Software, peripheral & supplies for the Apple

Spellguard by ISA 1728
260 Sheridan #300
Palo Alto CA 94306
Spellguard spelling dictionary

SSM Microcomputer Products 1319C,1321,1323C
2190 Paragon Dr
San Jose CA 95131

Stacey's Bookstore 1118C,1019C
219 University Ave., Palo Alto CA 94301
&
581 Market St, San Francisco CA 94105
Books

Standard & Poor's Corp. 1504C
25 Broadway
New York NY 10004
Stockpak, portfolio management systems

Stellation Two 2119
Box 2342
Santa Barbara CA 93120
The Mill 6809 supercharger for the apple II

Stone Age Microcomputers 19
15286 Cooper Av
San Jose CA 95124
Single board terminal

Stoneware Microcomputer Products 1828,1829
50 Belvedere St
San Rafael CA 94901
Microcomputer software

Strategic Simulations, Inc. 1520
465 Fairchild Dr #108
Palo Alto CA 94301
Bismark, Napoleonics, Air Combat, Ambush, Quarterback, Conflict, Warpfactor

Structured Systems Group, Inc. 505C
5204 Claremont Av
Oakland CA 94618
Microcomputer business applications software

Succinct Systems 40
1346 River St
Santa Cruz CA 95060
Algebraic systems implementation languages, digital Music synthesizer, speech output

Sunset Electronics 2112
2254 Taravaz St
San Francisco CA 94116

Sybex, Inc. 524C,623C
2344 6th St
Berkeley CA 94708
Books, software, self-study courses

Synergetic Computers 62
575 Middlefield #J
Palo Alto CA 94301
Gereral ledger, payable, recievable, payroll, cost accounting, inventory

Systems Furniture 1031
2727 Maricopo
Torrance CA 90503

SYZYGY 1548
256 W. San Bernardino Rd
Covina CA 91723
Electronic 232 test set, 232 connectors, anything cables

SZ Software Systems 11
1269 Rubio Vista Rd
Altadena CA 91001
North Star Basic utility set & Basic Sort statement

Taranto & Associates, Inc. 621
121 Paul Dr
San Rafael CA 94903

Tarbell Electronics 1748
950 Dovlen Place, #B
Carson CA 90746
EMPIRE-series computers and component parts

Tarco Development Corp. 1827C
1445 Koll Cir #111
San Jose CA 95112
5 Megabyte Winchesters for Heath, S-100 Bus; data base management systems

Tercer Medio Sistema de Informacion 2117
Box 62533
Caracas 1060A VENEZUELA

the great unknown 1744,1746
[name not available at press time]

Thunderware, Inc. 1650C
Box 13322
Oakland CA 94661
Thunderclock Plus & BSR X-10 interface for Apple II

TNW Corp. 1230
3351 Hancock St
San Diego CA 92110

Triac Computer Systems 611
333 Market St
San Francisco CA 94105
Complete business systems

Trillium Group 45
Box 957
Hillsboro OR 97123
Computer peripherals

TRS-Nybblers 1033
25555 Hesperian Blvd
San Leandro CA 94545

TSE-Hardside 1626C,1527C,1628,1529
6 South St
Milford NH 03055
Software, books & magazines

UCSD p-System Users' Society 1544
Box 1148
La Jolla CA 92038
Newsletter & software library

United Detector Technology 1803
3939 Landmark St
Culver City CA 90230
Optical position sensing computer peripheral

Vandata 212
17541 Stone Av N
Seattle WA 98133
Business software

Verbatim Corporation/FSI 2214
323 Soquel Way
Sunnyvale CA 94086

Videx, Inc. 1630
897 N.W. Grant Ave
Corvallis OR 97330
Videoterm, Enhancer, Romulator

Vodex - A Votrax Company 1642C
500 Stephenson Hwy
Troy MI 48084
SE-01, Speech Pac, VSM-I

Voyager Software 54
Box 15-518
San Francisco CA 94115

W W Components 2301C
1771 Junction Ave
San Jose CA 95112

Wabash Tape Corp. 1637C
2700 Des Plaines Av
Des Plaines IL 60018
Computer Media: computer magnetic tape and flexible diskettes

Washington Computer Services 22
3028 Silvern Ln
Bellingham WA 98225
R.M.S. (Record Management System)

West Side Electronics 63
Box 636
Chatsworth CA 91311
Apple II peripherals, misc electronics kits

West-Ware, Inc. 1726C
2455 S.W. 4th Ave #2
Ontario OR 97914
"Systems II", business software package for the Apple II

Western Computer Dealers Assn M6
c/o Best Computer Stores, Inc.
1122 B St
Hayward CA 94541

Western Micro Systems 1311Q
10040 Bubb Rd
Cupertino CA 95014

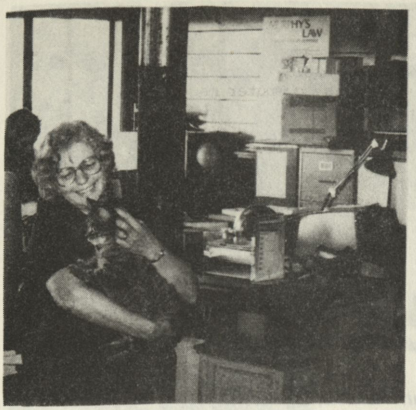
White Computer Co. 105,106
1876 Industrial Way
Redwood City CA 94063

Women in Information Processing M5
c/o Janet Perry
6141 Chabot Rd
Oakland CA 94618

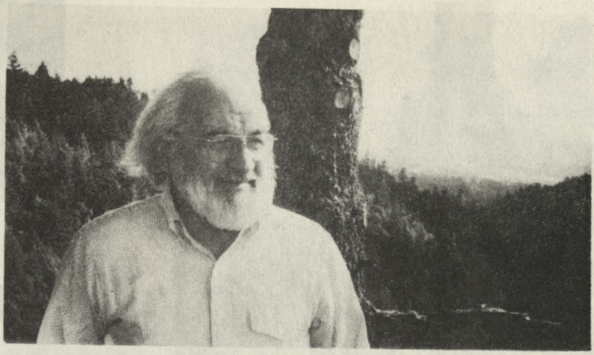
Xcomp, Inc. 1807
7566 Trade St
San Diego CA 92121
Micro computer hard disk controllers and hard disk sub systems

Zendex 1712C
6680 Sierra Ln
Dublin CA 94566
Multi bus components & systems

Zobex 2113
7343 J.Ronson Rd
San Diego CA 92111



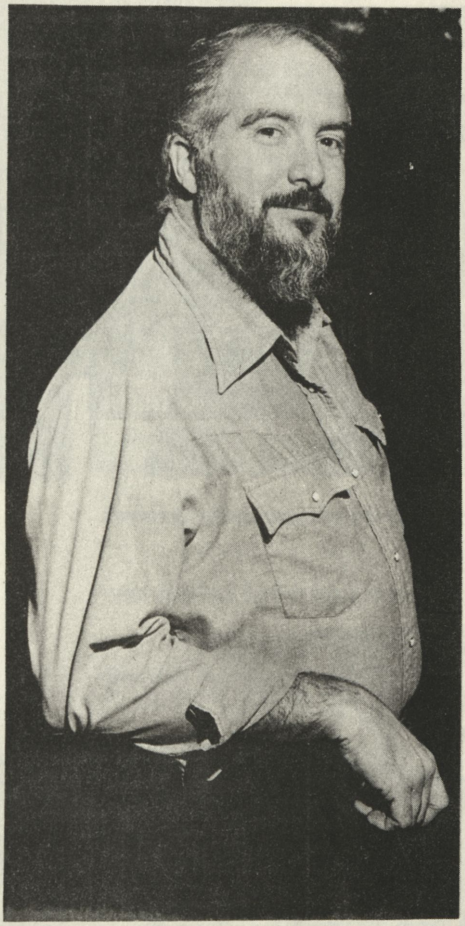
Marguerite 'Git' Brosing, E.M., Office Manager



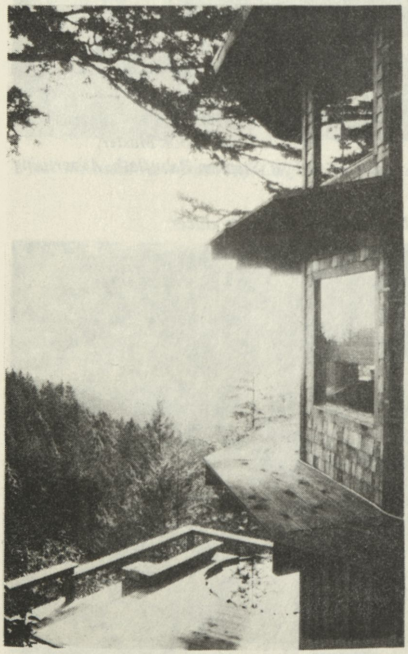
Mitch Strucinski, Business Manager

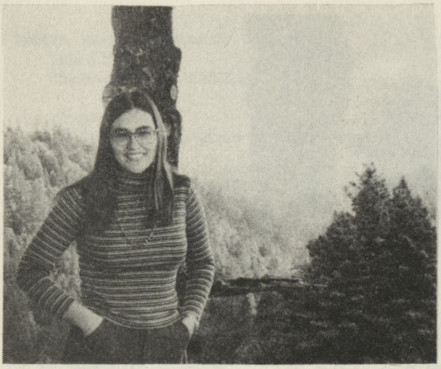
The
Computer Faire
Staff & Operations Center

Jim C. Warren, Jr., Faire Chair

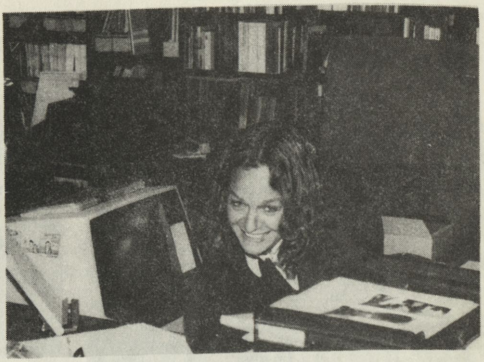


your basic Silicon Valley office building
(hot tub & sun deck mandantory for California computerizers)





Sarah Candelario, Exhibitor & Speaker Coordinator

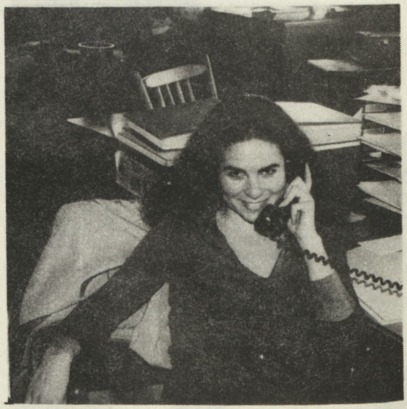


Patti Mendola, Resident Imp

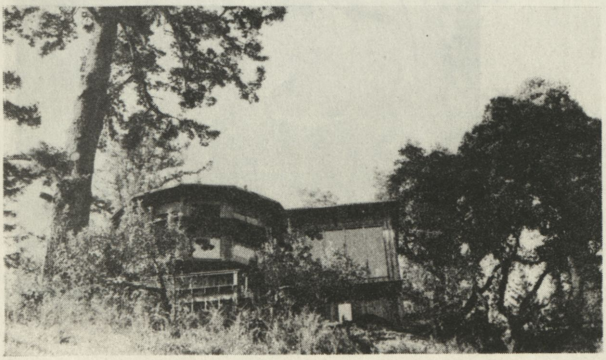
Vicki Rupe, Publications Production Potentate

Jeannie Lehmer, Staffette,
Faun Jackson, Book Master,
Stephan Bahnfleth, Advertising

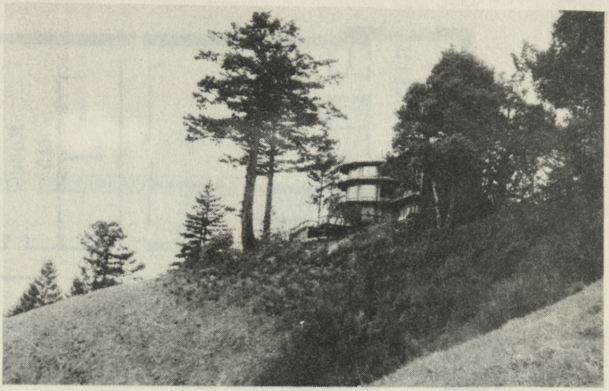
Johanna Immerman, Producer



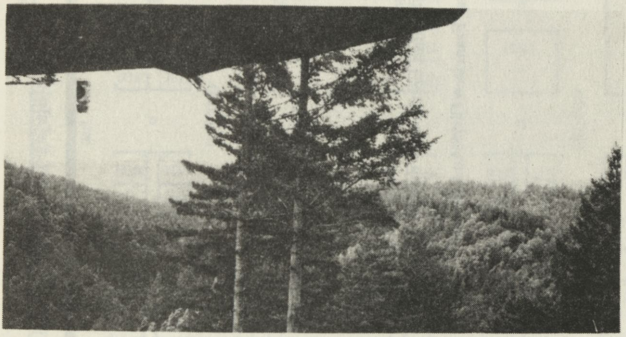
the southern exposure (staff pool at the right)



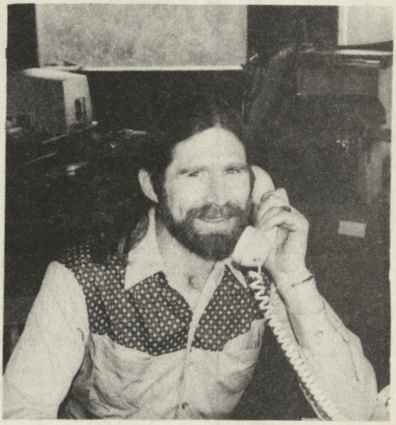
Tina Redse, Prolific Programmer



(Silicon Valleys are defined by sandstone ridges)

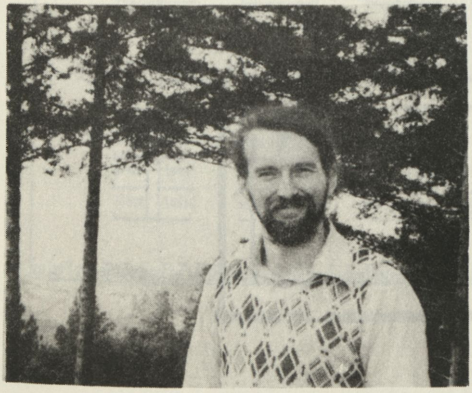


just the usual view from any California computer office window

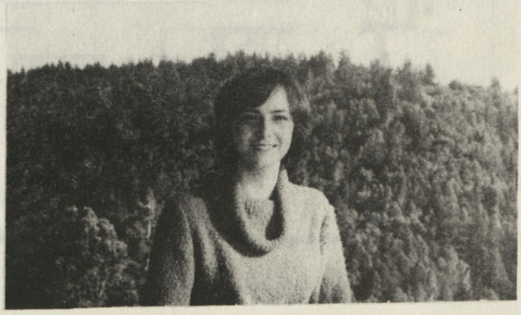


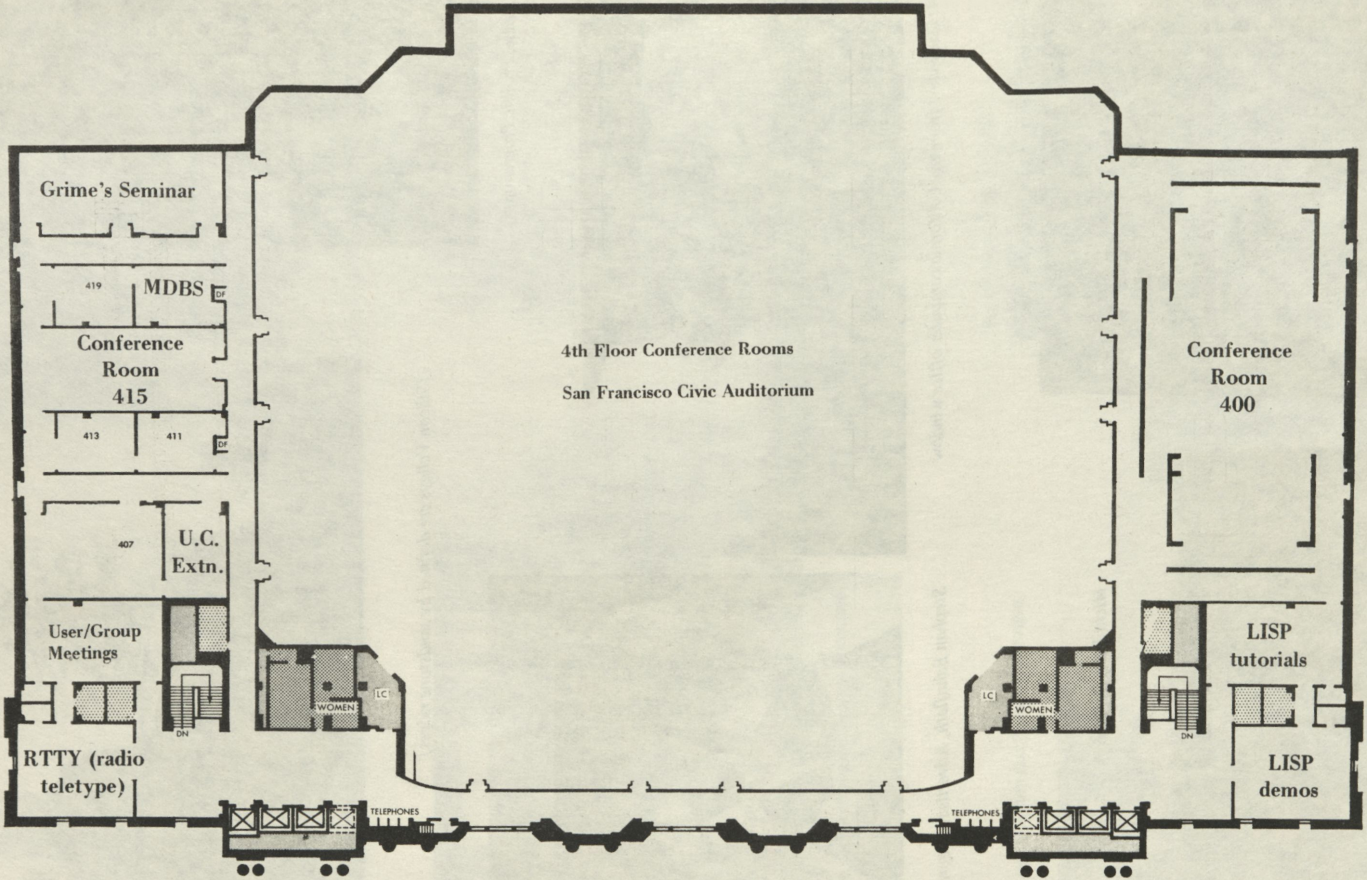
Stephan Bahnfleth, Advertising Representative

Bill Bruneau, Database & Circulation Manager



Micki Furr, Superstaff




Grime's Seminar
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MDBS
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Conference Room 415
413
411
DF
407
U.C. Extn.
User/Group Meetings
RTTY (radio teletype)
DN
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San Francisco Civic Auditorium
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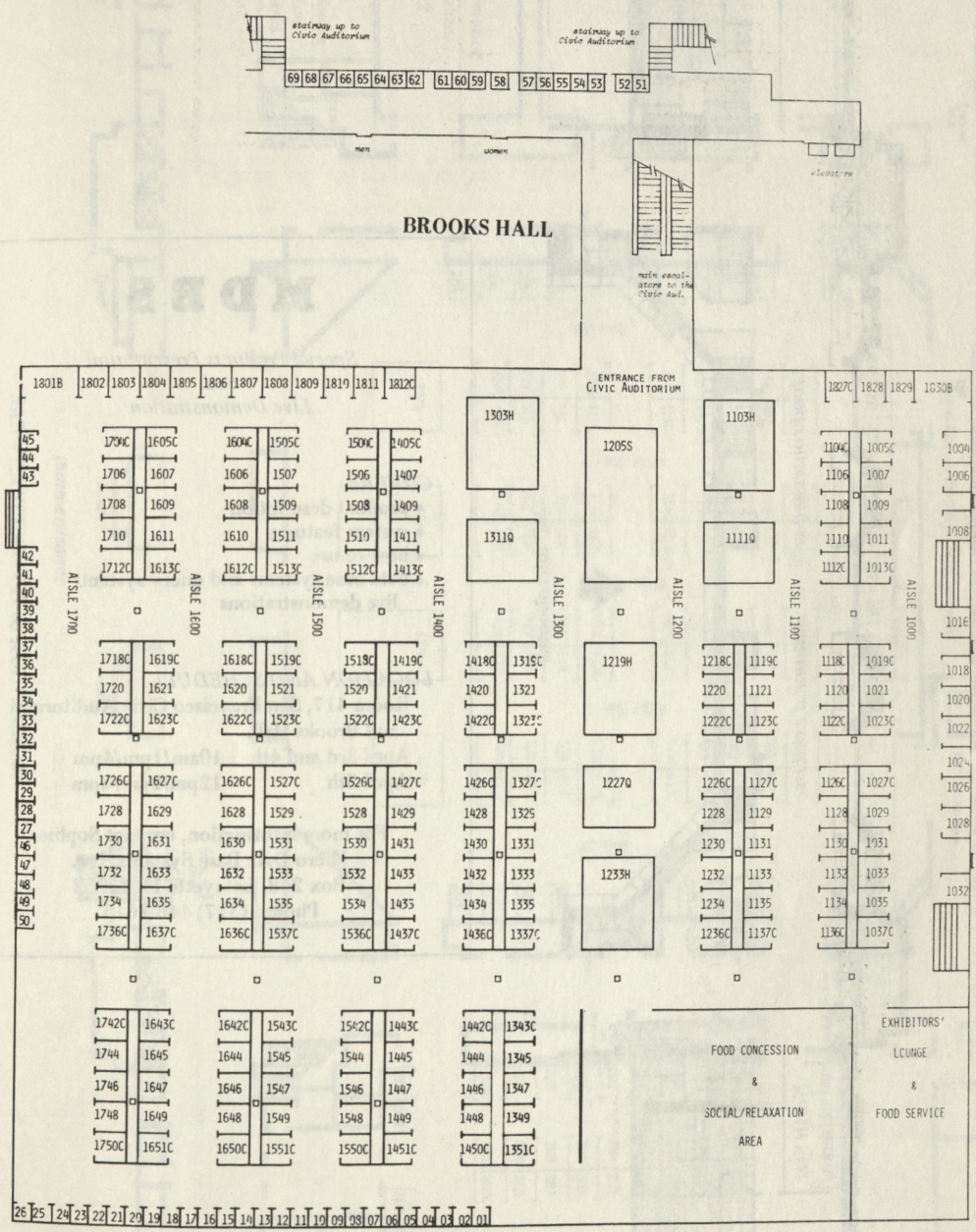
stairway up to Civic Auditorium
stairway up to Civic Auditorium
69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51
men
women
elevator
BROOKS HALL
main escalators to the Civic Aud.
1801B 1802 1803 1804 1805 1806 1807 1808 1809 1810 1811 1812C
ENTRANCE FROM Civic Auditorium
1827C 1828 1829 1830B
1703H
1311Q
1205S
1103H
1111Q
AISLE 1700
AISLE 1600
AISLE 1500
AISLE 1400
AISLE 1300
AISLE 1200
AISLE 1100
AISLE 1000
1219H
1227Q
1233H
FOOD CONCESSION & SOCIAL/RELAXATION AREA
EXHIBITORS' LOUNGE & FOOD SERVICE
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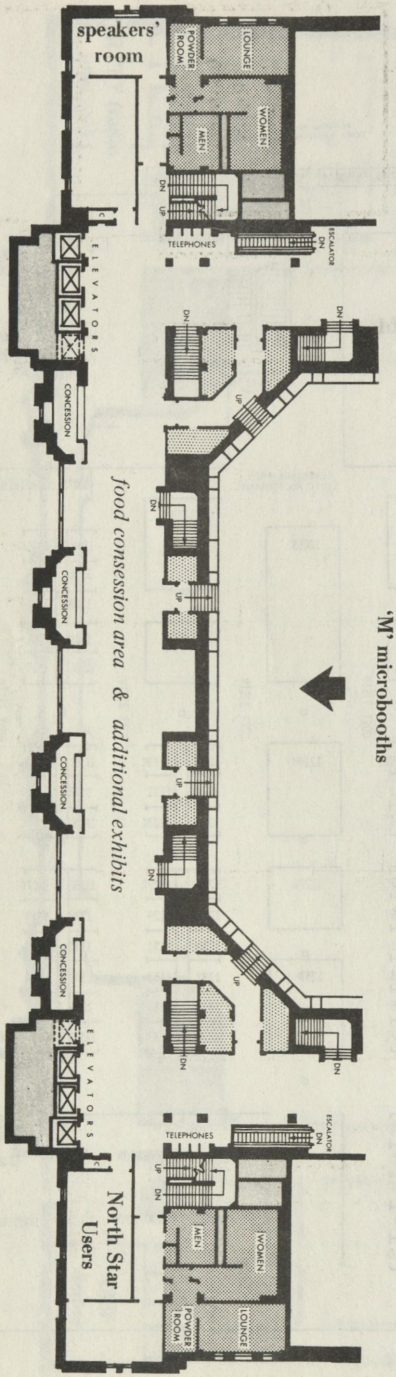

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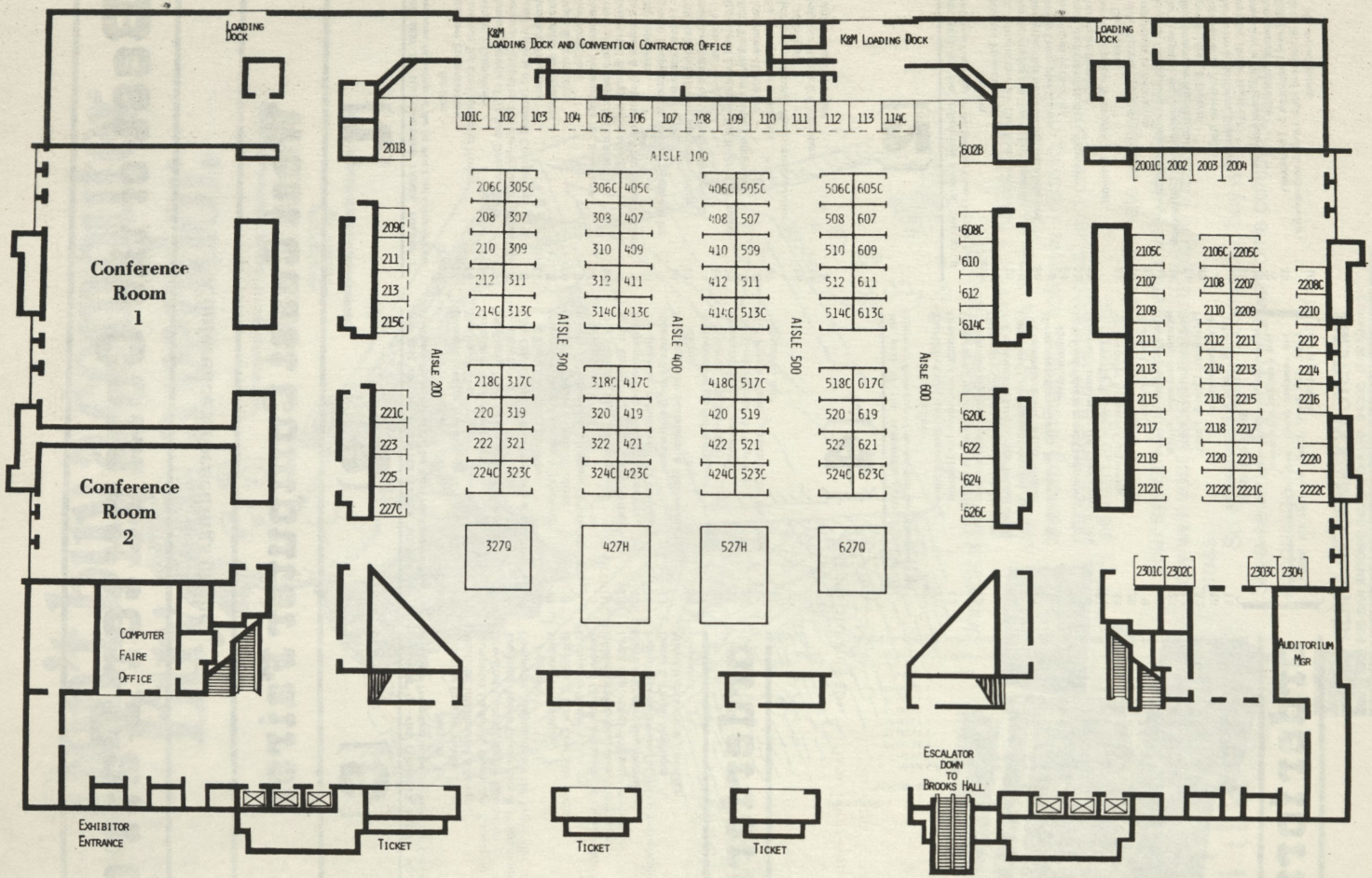

main entrance

SAN FRANCISCO CIVIC AUDITORIUM

Best of the Computer Faires

Conference Proceedings of the

West Coast Computer Faires

(1)

THE BEST OF THE COMPUTER FAIRES, VOLUME I
Conference Proceedings of the 1st West Coast Computer Faire

Section	Pages
Banquet Presentations	18
Tutorials for the Computer Novice	16
People & Computers	14
Human Aspects of System Design	9
Personal Computers for the Physically Disabled	7
Legal Aspects of Personal Computing	6
Heretical Proposals	11
Computer Art Systems	2
Music & Computers	46
Electronic Mail	5
Computer Networking for Everyone	14
Personal Computers for Education	38
Residential Energy & Computers	2
Computers & Systems for Very Small Business	4
Entrepreneurs	6
Speech Recognition & Speech Synthesis by Home Computers	14
Tutorials on Software Systems Design	11
Implementation of Software Systems & Modules	14
High Level Languages for Home Computers	15
Multi Tasking on Home Computers	9
Homebrew Hardware	8
Bus & Interface Standards	17
Microprogrammable Microprocessors for Hobbyists	18
Amateur Radio & Computers	11
Commercial Hardware	8

(2)

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Section	Pages
Banquet Presentations	8
An Introduction for the Absolute Novice	14
Computers for the Physically Disabled	13
Computers for the Visually Handicapped	29
Exotic Computer Games	8
Computers in the Arts	24
Legal Aspects of Home Computers	12
Computer Esoterica	15
Communication Networks & Personal Computers	21
Public-Access Computer Centers	16
Computers in Education	21
Business Computing on Small Machines	41
For Computer Businesspeople & Craftspeople	28
Microcomputer Applications	11
Speech Input & Output	39
Computers in Amateur Radio	4
Hardware & Software Standards	22
Brewing Home Hardware	19
Designing with Microprocessors	25
Commercial Hardware	7
High Level Languages & Translators	35
Block Structured High Level Languages for Microcomputers	40

(3)

THE BEST OF THE COMPUTER FAIRES, VOLUME III
Conference Proceedings of the 3rd West Coast Computer Faire

Section	Pages
Introduction for Novices	18
Visions of Near Future	9
Computer Music Systems	9
Intelligent Machines to Aid the Physically Impaired	4
Low-Cost Computers in Biomedical Environs & Health Delivery Systems	27
Computers for Education & Teaching	40
Computer Games & Puzzel Solving	9
Potential Legislation Affecting Computer Users & Owners	5
Low Cost Aid to Government	8
Legal Aspects of Computers & Software	18
Inexpensive Computing for Business	15
The Business of Inexpensive Computing	18
Business Systems Software	13
Floating Point Standards & Mathematical Micros	28
Microcomputing Software	21
Peripherals: Plain & Fancy	45
Communicating Computers	17
The Unclassifieds: A Potpourri	23
Post Partum Paper: Arrival After the Press Began to Roll	11

(4)

THE BEST OF THE COMPUTER FAIRES, VOLUME IV
Conference Proceedings of the 4th West Coast Computer Faire

Section	Pages
The Effect of Computers on Society	22
Designing Computers for Humans	12
Computer Communications for Human Communication: An Overview	15
Computer Communications for Human Communication: Digital Broadcasting	28
Computer Communications for Human Communication: Bidirectional	28
Microcomputers Energy Management & Environment	38
Low Cost Educational Computing	50
Personal Computing for Physicians & the Physically Impaired	14
Inexpensive Business Computing	33
Microcomputer Applications	29
Musical Computing	9
Systems Software: Pascal	9
Systems Software: Forth	23
Systems Software: Pilot	4
Potpourri: Plain & Fancy	52
Micro Peripherals	16
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Low Cost Computing for Education	21
Teaching About Computers & Programming	16
Computer Assistance for the Pnysically Impaired	8
Medical Computing	11
Business & Low Cost Computing	26
Computer Music	8
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Unusual Microcomputer Applications	5
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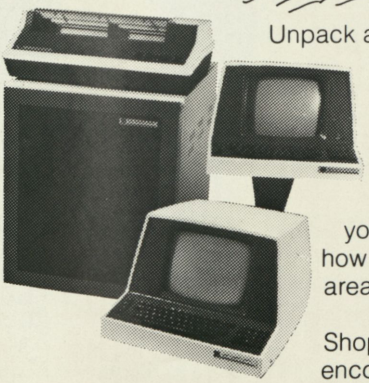

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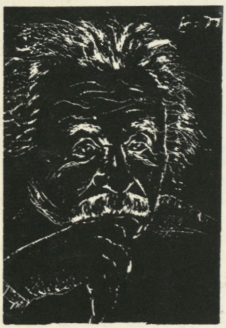
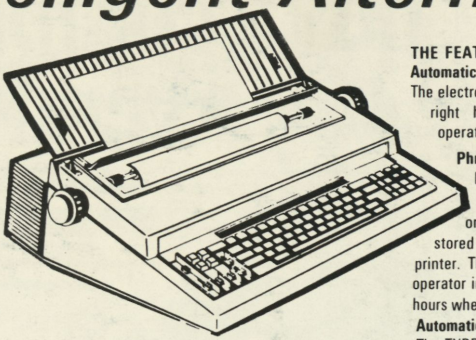




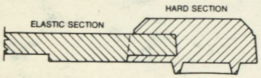
TYPRINTER 221

In the research you are doing before purchasing your computer printer, you are probably confused by the various claims, speeds, choices, shapes and prices. Well, we'd like to clear the air a bit and tell you about the most unusual computer-printer around — the TYPRINTER 221.

You see, it's unusual because it is **totally compatible** with **every** computer and word processing program . . . from the largest to the smallest. It's versatile to the point of incredibility . . . We'll discuss the broad advantages and explain the details.

THE DAISY WHEEL

The special daisy wheel supplied is of a unique design consisting of a 100 character carrying radii. Each radii is formed of two distinct types of plastic — an "elastic plastic" for the stalk of the radii, and a comparatively "hard plastic" used to form the character area. This, combined with a very narrow character profile and a special positioner on each of the 100 radii, guarantees a uniform character density. There is near perfect geometric positioning of the character with no character higher or lower than the others. And because of its unique dual material design, microvibrations have virtually been eliminated, leaving your final copy clean, clear and smudge free. The copy produced is comparable to that produced by metal daisy wheels and at a fraction of the cost.



THE KEYBOARD

The keyboard has been referred to as a triumph of human engineering - from the way the keys seem to have been custom designed to fit your fingers, to the way the special feature switches have been grouped. A flip of a switch (or under computer control of course) and the printer becomes a foreign language machine. Push a button, and like magic the printer automatically locates and lines up columns of figures, perfectly balanced between the margins. This incredibly fast, extraordinarily quiet electronic keyboard puts more programming power at you fingertips then printers costing five to ten times as much.

THE DISPLAY

The TYPRINTER 221 presents a new dimension in operator/machine communications. In the manual (typewriter) mode, the printer controls and verifies all entries before printing. The display exhibits the last 15 characters of the text, word-by-word, until the end of the line. The operator may control what will be printed before the actual printing takes place. This new found flexibility enables you to make modifications along the entire line and in both directions. This 20 character plasma display has the ability to scroll backwards as well as forwards; will give the operator a visual indication as to which print mode is currently being selected as well as the number of characters remaining before the right margin is reached. The display will also indicate to the operator:

The number of characters available in the memory.
When the printer is in an error condition.
When a pre programmed form lay out has been selected.
When the printer is operating from the internal memory.
What characters will be inserted into an existing text.
When the memory for the previous line has been selected.
A warning message that the end of the page is being approached.
That a hyphenation decision must be made.

PRINT MODE

The TYPRINTER 221 will allow you to automatically highlight individual characters, words or complete sentences. Whatever is entered from the keyboard or from the computer, even an existing text file, can be printed in one or more of the five different modes:

- traditional printing;
- underlined characters;
- true bold characters where the horizontal component of the character is increased without disturbing the vertical component;
- characters which are both bold and underlined, and;
- a feature unique among computer printers- printing in reverse — white on black, sort of reverse video on paper.

MULTILINGUAL CAPABILITY

A unique and useful feature of the TYPRINTER 221 is its capability of being able to print in several languages without changing the daisy wheel. In addition to English, every standard daisy wheel has the ability and the necessary characters to print in French, Spanish, Italian and German.

THE FEATURES

Automatic justification of the right margin
The electronics of the TYPRINTER 221 have made right hand justification a simple, automatic operation.

Phrase and format storage
Phrases, dates, addresses, data, etc. that may be stored in your computer's memory may be sent over to the printer and stored in one of the "memory bins" of the printer. This information may then be used by the operator in the manual mode. This can save you hours when trying to get a form "just right."

Automatic centering
The TYPRINTER 221 will not only center any title between the pre-set margins, but will also center over one or more columns, or over any specific point and will even align copy with the right margin independent of the left margin.

Automatic vertical lines
A command from the computer enables an automatic feature which prints vertical lines at any point on the paper.

Automatic tab sequence recall
With the TYPRINTER 221 you may store and recall the most frequently needed margin and tab sequences for applications such as daily correspondence, statistical reports, etc. This guarantees consistent high quality appearance of each document.

Paragraph indent
A computer command instantly sets a temporary margin in order to print one or more indented paragraphs with respect to the right margin.

Automatic decimal point location
No matter how many figures to either the left or right of the decimal point, the TYPRINTER 221 will automatically line up the figures with the decimal point in any position you choose. Statistical printing has never been easier.

Column layout
This feature allows you to obtain automatic and perfect distribution of spaces between columns in respect to the margins. A perfect page balance is assured without the need to carry out calculations or additional operations.

There is a wide variety of options that you can add to TYPRINTER 221.

By now you are probably convinced that **we are sold** on our machine, and we hope you can understand why. In fact, why don't you use these facts to measure against any and/or all the other computer printers on the market.

When you do, you will realize the TYPRINTER 221 is an intelligent electronic typewriter, a text formatter — and a brilliant computer printer — available at a suggested list price of only $2850.

TYPRINTER 221 is available at your local computer shop — or we'll tell you where you can see and try one if you call us at

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