

**ACM SIGGRAPH 86**

**FINAL  
PROGRAM**

*Dallas Convention Center  
Dallas, Texas  
August 18-22, 1986*





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*FRONT COVER CREDIT*

“SKYWARP,” Audrey Fleisher

## **WELCOME TO SIGGRAPH '86**

The annual ACM SIGGRAPH conference is the major national forum for the presentation of state-of-the-art technologies in computer graphics. Over the years SIGGRAPH has become the premier computer graphics conference in the world. It draws together people from all fields interested in communicating and interacting with visuals.

SIGGRAPH attendees gain knowledge from listening to the presentation of new material and talking to the leading experts at social functions. The exchange of ideas and technology takes place through technical paper presentations, exhibits, courses, panels, film and video shows, and art shows. Whether you're in the field or interested in applying computer graphics to solving real world problems, you will benefit from the total SIGGRAPH experience.

Welcome to the city of Dallas and SIGGRAPH '86. We hope you'll find this experience stimulating, both intellectually and socially.

## **COMPUTER GRAPHICS WEEK**

August 18-22, 1986, has been proclaimed "Computer Graphics Week" by the Senate of the state of Texas. The Senate recognizes that it is appropriate for SIGGRAPH '86 to take place in Dallas since the state of Texas boasts the fastest growing number of computer graphics users in the nation. The city of Dallas and the state of Texas proudly welcome this conference and its participants from throughout the world.

## SIGGRAPH: THE ORGANIZATION

SIGGRAPH is the Association for Computing Machinery's Special Interest Group on Computer Graphics. Its 12,000 plus members include engineers, architects and planners, artists, animators and filmmakers, software and hardware developers and manufacturers, scientists, mathematicians and many other professionals leading the fields of computer graphics theory, design, implementation and interactive techniques.

In addition to meeting annually at the national conference, computer graphics professionals have formed groups in their areas to continue the exchange of ideas and education through a local group network. In the United States, local SIGGRAPH groups are active in Austin, Bay Area, Chicago, Cleveland, Delaware Valley, Denver/Boulder, Los Angeles, Minneapolis/St. Paul, New England, New York, Phoenix, Princeton, Research Triangle, Syracuse and Washington, D.C. In addition, SIGGRAPH chapters also are active in France and Vancouver, Canada.

ACM SIGGRAPH membership includes subscriptions to SIGGRAPH's publication *Computer Graphics* and as a special edition, the conference proceedings. Membership dues are \$18 for ACM members and associate members, \$10 for ACM student members and \$45 for non-ACM members.

Membership application requests should be addressed to:

Association for Computing Machinery  
11 West 42nd Street  
New York, New York 10036 USA  
212/869-7440

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### **ACM SIGGRAPH 86 CONFERENCE COORDINATOR**

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### **TREASURER ADMINISTRATIVE ASSISTANT**

Kay Keszler

CONFERENCE-AT-A-GLANCE

SUNDAY  
August 17

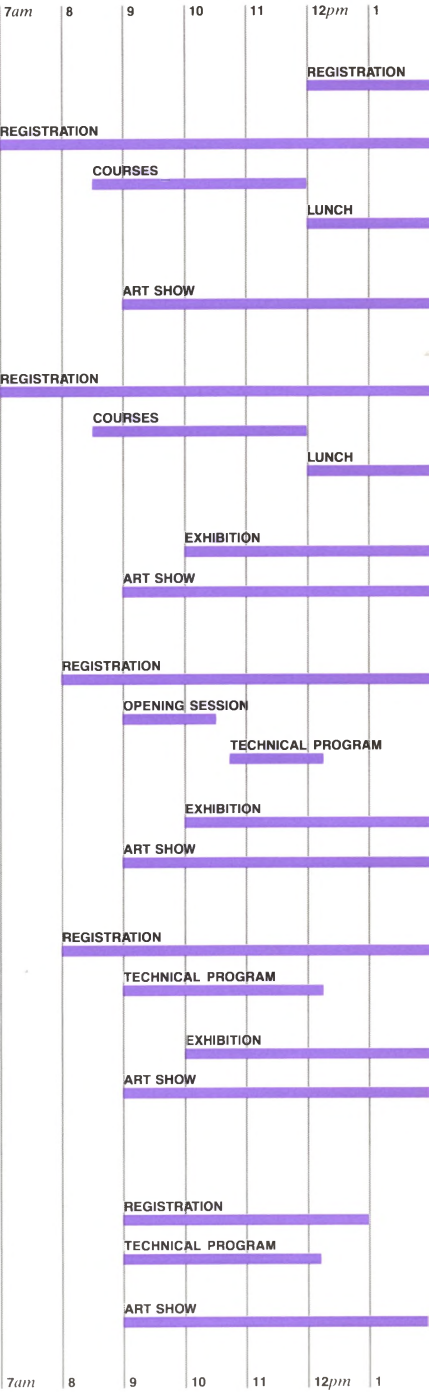
MONDAY  
August 18

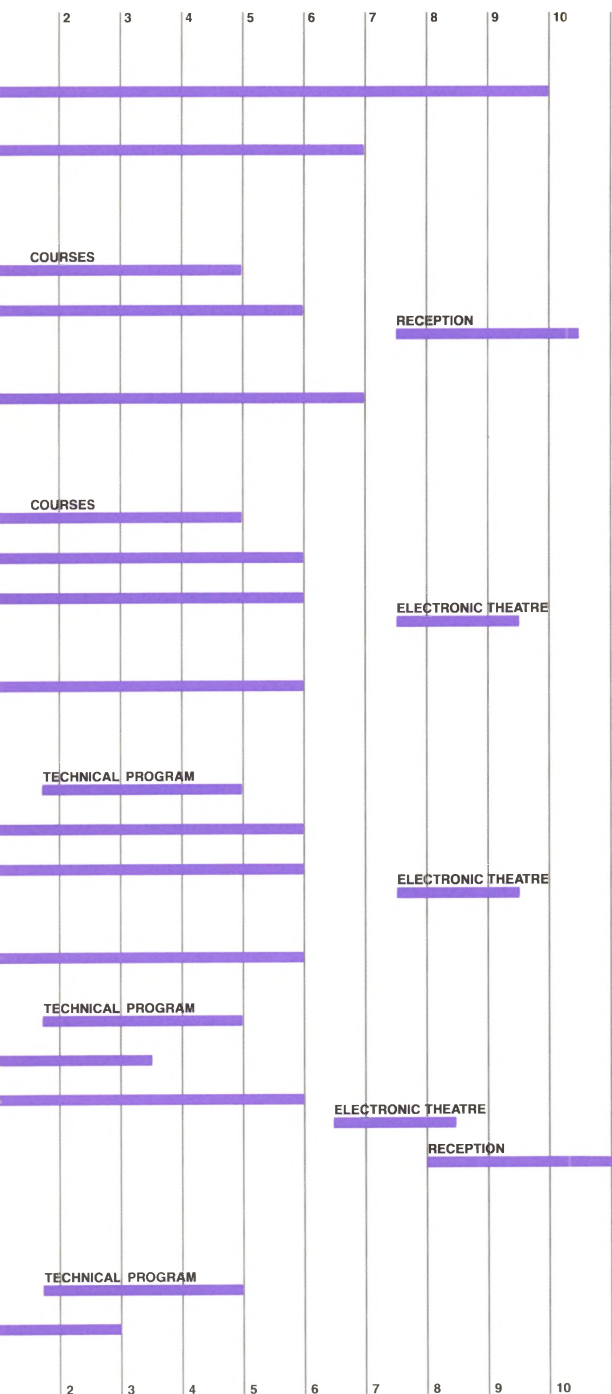
TUESDAY  
August 19

WEDNESDAY  
August 20

THURSDAY  
August 21

FRIDAY  
August 22





## CONFERENCE EVENTS

### TECHNICAL PROGRAM

Leading researchers in the field present their most recent technical achievements and state-of-the-art advances in computer graphics and interactive techniques. Over 140 papers were carefully reviewed by the SIGGRAPH '86 technical program committee. Papers selected for presentation are published in the conference proceedings (as a special issue of *Computer Graphics*). Previous SIGGRAPH conference proceedings have become standard references in the field.

The technical program is held concurrently with the panel sessions Wednesday through Friday in the Arena.

Refreshments are served during morning and afternoon coffee breaks.

Technical program registrants are invited to a Thursday evening reception at INFOMART, the world's first information processing center. Transportation is provided between the reception site, convention center and all conference hotels.

### PANEL SESSIONS

Panel sessions provide opportunities for candid, thought-provoking discussions of new trends in the graphics industry. Attendees and panelists discuss controversial issues, ongoing research and material not yet published. Panels are an important part of the conference and complement the formal technical program and courses.

The panel sessions are held concurrently with the technical program, Wednesday through Friday, in the Theatre. Panels registration is included as part of the technical program registration.

Refreshments are served during morning and afternoon coffee breaks.

## CONFERENCE EVENTS

### COURSES

From basic principles to modern day technologies, SIGGRAPH '86 courses provide attendees with a firm foundation and keen understanding of computer graphics. All courses feature outstanding lecturers and high quality aural/visual classroom environments, as well as a set of bound class notes. As an added feature this year, course attendees have the option of receiving continuing education units (CEU) from Duke University at the completion of the courses.

Courses are held on Monday and Tuesday at the Dallas Convention Center.

Course room locations are listed in the course locator and posted on a kiosk in the registration area. Lunches are served to course attendees adjacent to the Upper West Lobby in the West Wing of the convention center.

Course notes are available for pick up at the conference materials desk.

Course registrants are invited to a Monday evening reception at the world-famous Southfork Ranch, filming site for the television series "Dallas." Transportation is provided between the reception site and all conference hotels.

## CONFERENCE EVENTS

### INDUSTRY EXHIBITION

Exhibition hours:

|                      |                   |
|----------------------|-------------------|
| Tuesday, August 19   | 10 a.m.-6 p.m.    |
| Wednesday, August 20 | 10 a.m.-6 p.m.    |
| Thursday, August 21  | 10 a.m.-3:30 p.m. |

The SIGGRAPH exhibition is the industry's showcase for displaying the newest and most up-to-date computer graphics hardware, software, applications and services. Decision-makers and innovators searching for the latest products and services travel to SIGGRAPH from all over the world to compare state-of-the-art equipment and techniques. Exhibitors enjoy the challenges presented by SIGGRAPH's discerning buyers, and bring their technical talents and product introductions to this most important exhibition.

The SIGGRAPH '85 exhibition set an all-time record with 254 companies participating. Sixty-two percent of the attendees planned to buy or lease at least one of the products or services exhibited, as a result of what they saw at SIGGRAPH '85. The SIGGRAPH '86 exhibition promises to be even larger with more product and service categories than ever before.

### *EXHIBITION OPENING CEREMONY*

The largest SIGGRAPH exhibition to date officially opens at 10 a.m. on Tuesday, August 19. Join us for the ribbon cutting ceremony shortly before 10 a.m. at the entrance to the Exhibit Hall.

## CONFERENCE EVENTS

### ELECTRONIC THEATRE

Education through entertainment characterizes SIGGRAPH's highly acclaimed annual electronic theatre event.

The electronic theatre presents an outstanding, international collection of films and videotapes which illustrate the latest commercial, scientific and artistic computer graphics achievements. Submissions were reviewed by well-known professionals, who selected state-of-the-art computer generated motion imagery for presentation. The material is presented in a high-tech environment by skilled aural/visual experts on **three** consecutive nights, Tuesday through Thursday, August 19-21, in the Arena.

Entries that merit recognition but are not included in the evening performances are showcased in an animation screening room in West Ballroom C/D. The screening room is open from 10 a.m. to 6 p.m., Wednesday through Friday, August 20-22.

## CONFERENCE EVENTS

### ART SHOW

The 1986 art show is a retrospective exhibition celebrating the development of computer art over the past 20 years. The exhibition features multiple art forms, including framed art work, sculpture, installations and animation. Print materials relating to the art forms — rare early books and previous computer art catalogs — can be viewed by attendees. Adding to the theme, vintage posters will be on display. The art show is open from 9 a.m. to 6 p.m., Monday through Thursday and 9 a.m. to 3 p.m. on Friday in the West Wing, Lower Lobby.

An exciting addition to the annual art show is the Student Poster and Animation Contest and Exhibition (SPACE). Entry forms were sent to educational institutions throughout the U.S., soliciting art works from students. SPACE entries can be found in the West Exhibit Hall next to the restaurant.

To complement the SIGGRAPH art show, the Sheraton Dallas hotel gallery is hosting a selection of work by computer artists. The gallery is open daily from 8 a.m. to 10 p.m., August 11-31.

Admission to all art show events and a copy of the art show catalog are included in conference registration fees. Additional copies of the art show catalog are available for purchase.

## CONFERENCE EVENTS

### SOCIAL FUNCTIONS

Course attendees have a unique opportunity to visit the world-famous Southfork Ranch. Filming site for the television series “Dallas,” the ranch offers many points of interest for attendees. The 160-acre ranch has large, air conditioned pavilions for conversation and relaxing, beautiful grounds for strolling around, and, of course, the mansion is open for touring. Join your friends for a “Taste of Texas” meal and a festive time. Buses are scheduled throughout the evening between the reception site and the conference hotels.

Thursday evening’s technical program reception is at INFOMART, the world’s first information processing market center. INFOMART’s elegant architecture was inspired by the Crystal Palace in London built in 1851 to house the great expositions from all nations. A truly international affair, the reception features delicacies from different countries and activities throughout the beautiful atrium building. Experience the charm of the INFOMART, discuss technologies and experiences of SIGGRAPH ’86 and make plans to meet again next year.

Extra tickets for the evening receptions will be on sale during registration.

## CONFERENCE EVENTS

### SPECIAL INTEREST GROUPS

SIGGRAPH conferences provide opportunities for groups of colleagues to meet and discuss subjects of common interest. These special interest group meetings take the form of user groups, interest groups and birds-of-a-feather sessions.

Many hardware and software user groups traditionally meet during SIGGRAPH conferences to share experiences and information. User groups usually concentrate on a particular vendor, product, or group of products.

In recent years, conference attendees have organized interest group sessions to discuss common themes which may not have a single vendor or product as their focus.

Impromptu gatherings known as birds-of-a-feather groups are initiated by attendees at SIGGRAPH conferences. To schedule such meetings and to learn which are already planned, use the sign-up board in the registration area.

The following special interest groups are planning to meet during SIGGRAPH '86. A person is listed for each organization who you may contact for additional information.

#### *TUESDAY, AUGUST 19*

Floating Point Systems, Inc.

10 a.m.-11 a.m.

Room N205/207

Gayle Furlow (503) 641-3151, ext. 1737

SIGGRAPH Education Committee —

Educational Resource Grants Evaluation

5 p.m.-7 p.m.

Room N212/213

Steve Cunningham (209) 667-3176

#### *WEDNESDAY, AUGUST 20*

Evans & Sutherland Users Group

9 a.m.-12 p.m.

Room W117

Neil Harrington (801) 582-5847

Small Computers in the Arts

12 p.m.-1:30 p.m.

Room N205/207

Dick Moberg (215) 923-3299

## CONFERENCE EVENTS

Molecular Graphics

2 p.m.-3:30 p.m.

Room N222/223

Michael Pique (919) 966-5053

AUTOCAD Regional

User Group Conference

2 p.m.-5 p.m.

Room W116

Patricia Pellerano (415) 332-2344, ext. 710

SIGGRAPH Education Committee

2 p.m.-4 p.m.

Room N212/213

Steve Cunningham (209) 667-3176

User Interface Management Systems Special  
Interest Group

3 p.m.-5:30 p.m.

Room W109

James D. Foley (202) 554-8021

Adage Graphics Users Society (AGUS)

3 p.m.-6 p.m.

Hyatt Regency Dallas, Brisbane B

Julie Turkevich (617) 667-7070

MOVIE. BYU User's Group

5:30 p.m.-6:30 p.m.

N325/235

Hank Christiansen or Mike Stephenson  
(801) 378-6325

Graphics Compatibility System User  
Group (UGCS)

6 p.m.-7:30 p.m.

Room N205/207

Judy Brown (319) 353-3170

### *THURSDAY, AUGUST 21*

SIGGRAPH Education Committee

10 a.m.-11 a.m.

Room N205/207

Judith R. Brown (319) 353-3170

SIGGRAPH Education Committee

2 p.m.-4 p.m.

Room N212/213

Mike McGrath (303) 273-3434

ACM/SIGGRAPH Local Groups

3 p.m.-5 p.m.

Room N205/207

Stephan R. Keith (415) 964-9900

## CONFERENCE EVENTS

Also, check the kiosk in the registration area at the Dallas Convention Center for updated special interest group information and announcements of additional group meetings.

### ANIMATION SCREENING ROOM

Film and video pieces that merit recognition but are not included in the electronic theatre are showcased in an animation screening room. The room is open from 10 a.m. to 6 p.m., Wednesday through Friday, Aug. 20-22, in West Ballroom C/D. In conjunction with the art show, a retrospective animation screening is held in Room W102 during art show hours.

### SIGGRAPH EXECUTIVE COMMITTEE MEETING

The ACM SIGGRAPH Executive Committee holds an open meeting on Thursday at 5:30 p.m. in Room E410. All ACM SIGGRAPH members are invited to attend. Food will not be served during the meeting.

## GENERAL INFORMATION

### AIRLINE INFORMATION

American Airlines is offering a full-service desk to assist you in making travel arrangements. The desk is in the main corridor adjacent to the registration area. Hours are: Tuesday-Thursday, 8 a.m.-5 p.m., and Friday, 9 a.m.-3 p.m.

### A/V SERVICE

#### *A/V HEADQUARTERS*

A/V headquarters is in Room E402/403. Speakers are provided with general A/V assistance in this office, including 35mm slide trays and blank slides. A/V headquarters is open Sunday, 9 a.m.-9 p.m., and Monday-Friday, 7:30 a.m.-6 p.m. The telephone number is (214) 658-8578.

#### *SPEAKER FILM/VIDEO PREP ROOM*

A film/video room is in Room E404 for speakers to review 16mm films and 3/4-inch U-Matic NTSC videotapes. The room is open Sunday, 9 a.m.-9 p.m., and Monday-Friday, 7:30 a.m.-6 p.m.

#### *SPEAKER SLIDE PREP ROOM*

A slide prep room is available in Room E401 for speakers to review 35mm slides. Slide viewers/sorters and projectors are available Sunday, 9 a.m.-9 p.m., and Monday-Friday, 7:30 a.m.-6 p.m.

#### *ELECTRONIC THEATRE OFFICE*

The electronic theatre office is in Room N202/203. The office is open for contributors to pick up their films and videotapes Monday-Friday, 9 a.m.-noon.

### CHILD CARE

Child care services are provided by most SIGGRAPH '86 hotels. Contact the concierge desk or the guest services department of your hotel for information on types of child care services offered.

In accordance with the rules and regulations governing SIGGRAPH '86, no one under 16 is admitted to conference functions.

## **GENERAL INFORMATION**

### **CNTV**

A SIGGRAPH cable news program is offered to SIGGRAPH attendees on Dallas hotel television channels and in the registration area. The 30-minute news program features interviews with key people in the computer graphics industry, highlights of the conference program and updates of conference activities. Check with CNTV daily to see what's new and exciting.

### **CONFERENCE MANAGEMENT OFFICE**

If you need assistance or have general questions about the conference, SIGGRAPH '86 staff members are available to help you in the conference management office. The office is in Rooms E301/302 and the telephone number is (214) 658-8582.

### **CONFERENCE MATERIALS**

SIGGRAPH '86 course notes, proceedings, slide sets, t-shirts, posters, mugs and art show catalogs are available for pick-up and purchase in the registration area. SIGGRAPH video reviews and a limited supply of previous SIGGRAPH conference materials are also available.

For your convenience, a shipping desk is set up near the conference materials desk. CF Airfreight provides air freight services to the United States, Canada and overseas countries as well as arranges for UPS shipments to the United States and parts of Canada.

You may pick up your conference materials during registration hours. All conference materials must be picked up at the conference materials desk in the registration area, East Exhibit Hall, by 5 p.m. on Friday, August 22.

## **GENERAL INFORMATION**

### **DRESS**

Casual dress is acceptable at all SIGGRAPH '86 conference functions. Casual dress is also acceptable at many Dallas dining establishments.

However, jackets and ties may be required in some locations. The SIGGRAPH '86 conference committee recommends that guests check dress code requirements when restaurant reservations are made.

### **EXHIBITION MANAGEMENT OFFICE**

If you have questions pertaining to the industry exhibition, contact the personnel in the exhibition management office in Room E405. The telephone number is (214) 658-8589.

### **FIRST AID**

Paramedics are on duty Sunday-Friday during the following hours: Sunday, 8 a.m.-10 p.m.; Monday, 8 a.m.-8 p.m.; Tuesday, 8 a.m.-10 p.m.; Wednesday, 8 a.m.-10 p.m.; Thursday, 9 a.m.-9 p.m.; and Friday, 8 a.m.-5 p.m.

First aid assistance is administered in Room N232 and the West Permanent Office. The telephone numbers are (214) 658-8503 (east office) and (214) 658-8504 (west office).

### **FOODSERVICE**

Food is served in two areas of the Dallas Convention Center. On exhibit days, a full-service restaurant is operating in the rear of the exhibit hall. In addition, full-course meals are served daily in the cafeteria/dining room located off the East Main Lobby of the complex.

### **FOREIGN CURRENCY EXCHANGE**

The principal conference hotels can exchange foreign currency. Check with your hotel to see if they provide this service.

## GENERAL INFORMATION

### HOTELS

\*\* Hyatt Regency Dallas  
300 Reunion Blvd.  
Dallas, TX 75207  
(214) 651-1234

\*\* Plaza of the Americas  
Hotel  
650 North Pearl  
Dallas, TX 75201  
(214) 747-7222

\*\* Sheraton Dallas Hotel  
& Towers  
400 North Olive St.  
Dallas, TX 75201  
(214) 922-8000

The Adolphus  
1321 Commerce  
Dallas, TX 75202  
(214) 742-8200

The Ambassador  
Plaza Hotel  
1312 South Ervay  
Dallas, TX 75215  
(214) 565-9003

Bradford Plaza  
302 South Houston St.  
Dallas, TX 75204  
(214) 761-9090

Fairmont Hotel  
1717 North Akard St.  
Dallas, TX 75201  
(214) 720-2020

GreenLeaf Hotel  
1011 South Akard St.  
Dallas, TX 75215  
(214) 421-1083

Dallas Hilton  
1914 Commerce St.  
Dallas, TX 75201  
(214) 747-7000

Holiday Inn  
Downtown  
1015 Elm St.  
Dallas, TX 75202  
(214) 748-9951

Loews Anatole Hotel  
2202 Stemmons Frwy.  
Dallas, TX 75207  
(214) 748-1200

Dallas Marriott-  
Market Center  
2101 Stemmons Frwy.  
Dallas, TX 75207  
(214) 748-8551

Dallas Plaza  
1933 Main St.  
Dallas, TX 75201  
(214) 741-7700

Wyndham Hotel-  
Dallas Market Center  
2222 Stemmons Frwy.  
Dallas, TX 75207  
(214) 631-2222

\*\* *indicates principal conference hotel*

## **GENERAL INFORMATION**

### **HOUSING ASSISTANCE**

A representative from the Dallas Convention and Visitors Bureau is available at the housing desk in the main corridor adjacent to the registration area on Sunday from noon-10 p.m. and Monday and Tuesday from 7 a.m.-7 p.m. Personnel can assist SIGGRAPH '86 registrants in obtaining hotel accommodations in Dallas.

SIGGRAPH '86 registrants needing housing assistance Wednesday, Thursday and Friday can contact the Dallas Convention and Visitors Bureau between 8:30 a.m. and 5 p.m. at (214) 954-1440.

### **INFORMATION COUNTERS**

Personnel are available to handle questions at the conference information counters located at the Main Lobby, West Wing Lobby and the registration area. The counters are open during registration hours, beginning at noon on Sunday.

### **LUGGAGE CHECK**

A luggage check is located in the Main Lobby for your convenience.

### **MESSAGE CENTER**

Messages can be left for SIGGRAPH '86 attendees at the message center in the registration area of the Dallas Convention Center. The telephone number is (214) 658-7116.

Message center personnel also accept personal messages from one conference participant to another. The center is open beginning at noon on Sunday and thereafter during registration hours.

**GENERAL INFORMATION**

**PRESS BRIEFING**

SIGGRAPH '86 highlights are presented to the media during the press briefing on Tuesday, August 19, at 8:30 a.m. in Room E407. Following a short question and answer session, early admission to the exhibition floor is granted to members of the press.

**PRESS ROOM**

Room E406 is the center for press activities during SIGGRAPH '86. Members of the press should come directly to the press room to register and pick up press badges. Press kits, telephones, typewriters, conference course notes and proceedings are available in this room. Individual interviews with SIGGRAPH '86 spokespersons, exhibitors and others may be scheduled here. The press room is open Sunday, 2 p.m.-6 p.m.; Monday-Thursday 8 a.m.-6 p.m.; and Friday 8 a.m.-noon.

**REGISTRATION**

Registration for all SIGGRAPH '86 activities is in the Dallas Convention Center.

Registration hours are:

|                      |               |
|----------------------|---------------|
| Sunday, August 17    | noon-10 p.m.  |
| Monday, August 18    | 7 a.m.-7 p.m. |
| Tuesday, August 19   | 7 a.m.-7 p.m. |
| Wednesday, August 20 | 8 a.m.-6 p.m. |
| Thursday, August 21  | 8 a.m.-6 p.m. |
| Friday, August 22    | 9 a.m.-1 p.m. |

Members of the press should proceed directly to the press room for registration. Press badges are distributed in Room E406.

## **GENERAL INFORMATION**

### **RESTAURANT INFORMATION**

Menus of local restaurants are on display at the restaurant information desk in the main corridor adjacent to the registration area. Personnel can assist conference attendees in making reservations at area restaurants. This desk is open during registration hours.

### **SHIPPING DESK**

A shipping desk is set up near the conference materials desk in the registration area of the Dallas Convention Center. CF Airfreight provides air freight services to the United States, Canada and overseas countries as well as arranges for UPS shipments to the United States and parts of Canada.

### **SESQUICENTENNIAL**

The state of Texas is throwing its 150th birthday party during 1986 and in Dallas the theme is "Celebrate Texas Dallas Style." For information on Sesquicentennial activities, contact The Greater Dallas Sesquicentennial Committee, First and Grand Ave., Fairpark, Dallas, TX 75210-1986; (214) 565-1986.

### **SIGGRAPH LOCAL GROUPS**

A SIGGRAPH local groups meeting will be held from 3-5 p.m. on Thursday in Rooms N205/207. This is an ideal opportunity to get relevant information on starting a local group.

## GENERAL INFORMATION

### SLIDE SETS

The following slide sets have been created for SIGGRAPH '86: technical slide set, industry slide set and art show slide set. These slide sets depict the current state of the art in computer graphics research and applications, document the latest innovations from the world's leading suppliers of computer graphics hardware, software, applications packages and services, and provide an important visual record of the SIGGRAPH '86 art show.

Prints of the slides are on display near the conference materials desk in the registration area. All slide sets can be purchased at the registration desk and picked up at the conference materials desk.

### SMOKING POLICY

There is no smoking allowed in conference locations.

## **GENERAL INFORMATION**

### **TELEPHONE NUMBERS**

A/V headquarters

(214) 658-8578

Conference management office

(214) 658-8582

Emergencies (ambulance, fire, police)

911

Exhibition management office

(214) 658-8589

First aid

(214) 658-8503

Housing assistance

(214) 954-1440

Message center

(214) 658-7116

Press room

(214) 658-8595

Registration area

(214) 658-8505

Dallas Convention and Visitors Bureau

(214) 954-1111

### **TRANSPORTATION**

There are limousines, taxis and buses available to and from the Dallas airport to conference hotels. Tickets for the airport bus, The Link, will be sold in the registration area.

Frequent shuttle bus service is provided between all SIGGRAPH '86 hotels listed in this program and the Dallas Convention Center. Shuttle buses are running for all conference activities.

## COURSES-AT-A-GLANCE

SIGGRAPH '86 courses are held in the Dallas Convention Center from 8:30 a.m. to 12 p.m. and 1:30 to 5 p.m. (seven class hours) on Monday and Tuesday, August 18 and 19. Room assignment information is in the course locator available in the registration area.

### COURSES

|    |                                                |
|----|------------------------------------------------|
| 1  | Introduction to Computer Graphics              |
| 2  | How to Evaluate and Shop for Computer Graphics |
| 3  | Introduction to Color Raster Graphics          |
| 4  | Introduction to the Use of Splines in Freeform |
| 5  | Extension of B-Spline Curve Algorithms to      |
| 6  | Today's Problemsolvers: Graphic Workstations   |
| 7  | Computer Graphics in Mechanical Design         |
| 8  | Introduction to Solid Modeling                 |
| 9  | Advanced Topics in Solid Modeling              |
| 10 | Geometry for Computer Graphics and Computer    |
| 11 | Fractals: Basic Concepts, Computation and      |
| 12 | Developments in Ray Tracing                    |
| 13 | Digital Image Processing Fundamentals          |
| 14 | Advanced Image Processing                      |
| 15 | State of the Art in Image Synthesis            |
| 16 | Image Rendering Tricks                         |
| 17 | Interactive Laser Videodisc: Applications and  |
| 18 | How to Design User-Computer Interfaces         |
| 19 | Advanced Topics — Human Factors in Computing   |
| 20 | Human Computer Interaction: Selected Theories, |
| 21 | Animation Appreciation                         |
| 22 | Advanced Computer Animation                    |
| 23 | Computer Animation: 3-D Motion Specification   |
| 24 | Computer Animation Using Video Techniques      |
| 25 | Understanding the Computer Graphics Virtual    |
| 26 | An Introduction to PHIGS: The Programmer's     |
| 27 | Integrating Music and Graphics                 |
| 28 | PC-Based Systems for Professional Quality      |
| 29 | Documentation Graphics                         |
| 30 | Financing and Asset Management                 |



## COURSES

### **1** INTRODUCTION TO COMPUTER GRAPHICS

*Monday — Introductory*

#### CHAIR

Bertram Herzog, consultant

#### LECTURERS

Steven K. Feiner, Columbia University, New York, NY

James D. Foley, The George Washington University, Washington, D.C.

Bertram Herzog, consultant

Charles Weger, Computer Graphics Consultants, Inc., Washington, D.C.

#### TOPICS

Introduction and applications/Herzog

- Selected applications

Hardware: what it is and how it's used/Weger

- Display systems — vectors vs. rasters
- Hardcopy devices and concepts
- Selection criteria
- PC graphics hardware
- Useful buzzwords
- Workstations and the future

Software concepts/Herzog

- Coordinate systems and transformations
- Windows and viewports
- Graphic primitives and their attributes
- Segmentation
- Structure of an application and its software

User interface principles/Foley

- Interaction devices and techniques
- Dialog styles
- Top-down design of user-computer interfaces
- Software tools for implementing user interfaces

Realism/Feiner

- Visible surface determination
- Shading and texturing
- Lighting models
- Animation
- Modeling natural phenomena

Trends and discussion/Feiner, Foley, Herzog, Weger

- Questions and answers
- Audience participation

## COURSES

### 2 HOW TO EVALUATE AND SHOP FOR COMPUTER GRAPHICS HARDWARE

*Tuesday – Introductory*

#### CHAIR

James R. Warner, Precision Visuals, Inc.

#### LECTURERS

James R. Warner, Precision Visuals, Inc.,  
Boulder, CO

Randy Wise, Graphics Communications, Inc.,  
Waltham, MA

#### TOPICS

Introduction

Review of graphics hardware technologies with  
buying criteria for each

Dumb terminals, intelligent terminals, work-  
stations, hardcopy devices, personal computer  
graphics hardware

Understanding the problem you have to solve

Categorizing your needs; matching vendor  
features to your needs

Your environment – opportunities and constraints

Application software, computer system(s),  
graphics device(s), graphics software  
package(s), user profile(s), budget

Getting the graphics hardware to talk to your  
computer

Performance: what you need, compared with  
what the vendor can offer

The intangibles to consider when evaluating  
graphics hardware

How to evaluate the graphics hardware vendor

The importance of software when selecting  
graphics hardware

The role and reality of graphics standards

“War stories” from graphics software developers  
on supporting graphics hardware

A graphics hardware “Wish List”

A preview of new technology being exhibited at  
SIGGRAPH '86

## COURSES

### 3 INTRODUCTION TO COLOR RASTER GRAPHICS

*Tuesday – Introductory*

#### *CHAIR*

Donald P. Greenberg, Cornell University

#### *LECTURERS*

Michael Cohen, Cornell University, Ithaca, NY

Ted Crane, Cornell University, Ithaca, NY

Gene Dykes, Cornell University, Ithaca, NY

Donald P. Greenberg, Cornell University,  
Ithaca, NY

Peter Kochevar, Cornell University, Ithaca, NY

#### *TOPICS*

Introduction/Greenberg

Raster concepts/Cohen

Frame buffer architecture/Crane

Raster algorithms/Dykes, Kochevar

Color and color spaces/Cohen

Illumination models and reflection/Greenberg

Applications/Dykes, Kochevar

## COURSES

4

### INTRODUCTION TO THE USE OF SPLINES IN FREEFORM CURVE AND SURFACE DESIGN

*Monday – Introductory*

#### CHAIR

Richard H. Bartels, University of Waterloo

#### LECTURERS

Brian A. Barsky, University of California,  
Berkeley, CA

Richard H. Bartels, University of Waterloo,  
Waterloo, Ontario

John C. Beatty, University of Waterloo, Waterloo,  
Ontario

#### TOPICS

Introduction/Beatty

- Cubic segments
- Continuity conditions
- Interpolation conditions
- Parametric curves
- Uniform cubic B-splines
- Control vertices
- Shape control
- Surfaces

Generalities/Bartels

- Knots, order, parameter range, bases
- Divided differences
- General B-splines
- Various recurrences
- Alternative representations

Bézier and Beta-splines/Barsky

- Bézier curves
- Subdivision
- Geometric continuity
- Beta-splines
- Shape control

Selected topics/All

- Rendering
- Computational techniques
- Interpolation and approximation
- Catmull-Rom, cardinal, hermite, etc.

## COURSES

5

### EXTENSION OF B-SPLINE CURVE ALGORITHMS TO SURFACES

*Tuesday — Intermediate*

#### CHAIR

Carl de Boor, University of Wisconsin,  
Madison

#### LECTURERS

Carl de Boor, University of Wisconsin,  
Madison, WI

Wolfgang Dahmen, Universität Bielefeld, Federal  
Republic of Germany

Klaus Höllig, University of Wisconsin,  
Madison, WI

Charles Micchelli, IBM Research Center,  
Yorktown Heights, NY

#### TOPICS

B-spline basics/de Boor

Subdivision algorithms for curves and surfaces/  
Micchelli

Bernstein-Bézier form of multivariate  
polynomials/Dahmen

Geometric continuity/Höllig

## COURSES

### 6

## TODAY'S PROBLEMSOLVERS: GRAPHIC WORKSTATIONS

*Monday — Intermediate*

### CHAIR

Bruce Eric Brown, The Quail Group

### LECTURERS

Bruce Eric Brown, The Quail Group, Orem, UT

Robert L. Judd, Los Alamos National Laboratory, Los Alamos, NM

Steven G. Kensinger, Kensinger Integrated Technologies Corporation, Minneapolis, MN

### TOPICS

Overview and definition of workstations/Brown

- What is a workstation, how did it develop

Where do workstations fit/Judd

- How can workstations be integrated into an existing computing environment or should they be standalone

Scientific Computing/Judd

- Large computer intensive calculations can use workstations for parts of the job, but where and how

Mechanical engineering computing/Kensinger

- Problems with islands of automation will be addressed and the workstations impact on the ultimate system

Presentation workstations/Brown

- Many new companies offering workstations to display information; these can be integrated to increase communication

Evaluation/Kensinger, Judd

- When we go out to buy what do we look for?

Benchmarking workstations/Brown

- A series of benchmarks for comparing graphic workstations has been developed and will be presented

## COURSES

7

### COMPUTER GRAPHICS IN MECHANICAL DESIGN

*Tuesday – Intermediate*

#### CHAIR

Joel N. Orr, The CADD/CAM Institute

#### LECTURER

Joel N. Orr, The CADD/CAM Institute,  
Danbury, CT

#### TOPICS

The problem: automating tradition bound activities

What do designers really do?

The potential of computer graphics

How current systems address the problem

Some proposed improvements

The future of design automation: computer interactive machine design

Where to look for more information

## COURSES

8

### INTRODUCTION TO SOLID MODELING

*Monday – Introductory*

#### CHAIR

George Allen, McDonnell Douglas Corporation

#### LECTURERS

George Allen, McDonnell Douglas Corporation,  
Cypress, CA

Bob Johnson, R. H. Johnson & Associates,  
Ann Arbor, MI

Jim Miller, Control Data Corporation, Arden  
Hills, MN

#### TOPICS

Introductory overview/Allen

- Rationale for solid modeling
- Schemes for representing solids
- Construction and editing techniques
- Possible applications
- Hardware for solid modeling

Analysis of solid models/Miller

- Ray tracing
- Intersecting curves and surfaces
- Boundary evaluation
- Calculation of mechanical properties

Industrial usage of solid modeling/Johnson

- Typical industrial applications
- Benefits, accomplishments and concerns

# COURSES

9

ADVANCED TOPICS IN SOLID MODELING

*Tuesday — Intermediate*

## CHAIR

James R. Miller, Control Data Corporation

## LECTURERS

John Hopcroft, Cornell University, Ithaca, NY

Donald Meagher, Phoenix Data Systems,  
Albany, NY

Wayne Tiller, Structural Dynamics Research  
Corporation, Milford, OH

Tony Woo, University of Michigan, Ann Arbor, MI

## TOPICS

Automatic generation of surfaces for blending  
algebraic surfaces in solid modeling systems/  
Hopcroft

- The blending problem
- Types of blending surfaces
- Blending corners
- Issues to be investigated

Solid modeling using non-uniform rational  
B-splines: mathematical techniques/Tiller

- Need for free-form surfaces
- Tensor product non-uniform rational B-spline  
surfaces
- Fitting techniques
- Surface intersection
- Representation of trimming curves

3-D finite element pre-processing: properties and  
algorithms/Woo

- Relationships between surface and solid  
elements
- Use of the relationships to compute items of  
interest
- An algorithm for automatic generation of  
tetrahedral decomposition of solids

Specialized hardware processors for interactive  
solid modeling/Meagher

- Need for hardware approaches to solid modeling
- Octrees
- Specialized octree processors

## COURSES

10

### GEOMETRY FOR COMPUTER GRAPHICS AND COMPUTER AIDED DESIGN

*Monday — Intermediate*

#### CHAIR

Ronald N. Goldman, Control Data Corporation

#### LECTURERS

James F. Blinn, Jet Propulsion Laboratory,  
Pasadena, CA

Tony DeRose, University of Washington,  
Seattle, WA

Ronald N. Goldman, Control Data Corporation,  
Arden Hills, MN

Tom Sederberg, Brigham Young University,  
Provo, UT

#### TOPICS

Vector Geometry/Goldman

- Vector algebra — addition, subtraction, scalar multiplication, dot product, cross product and determinants
- Metric formulas — length, angle, distance, area, volume
- Affine transformations — rigid motions, scaling, projections

Projective geometry/Blinn

- Homogeneous coordinates
- Conic sections
- Quadric surfaces
- Projections

Differential geometry/DeRose

- Geometric continuity of curves and surfaces
- Curves — tangent and curvature vectors
- Surfaces — tangent plane and Dupin indicatrix
- Reparametrization
- Beta constraints

Algebraic geometry/Sederberg

- Elimination theory and resultants
- Implicitization and inversion of curves and surfaces
- Intersection algorithms
- Geometric modeling with algebraic surfaces

## COURSES

### **11** FRACTALS: BASIC CONCEPTS, COMPUTATION AND SELECTED TOPICS

*Monday — Advanced*

#### CHAIR

Peter Oppenheimer, New York Institute of Technology

#### LECTURERS

Alain Fournier, University of Toronto, Toronto, Ontario

Peter Oppenheimer, New York Institute of Technology, Old Westbury, NY

Heinz-Otto Peitgen, University of California, Santa Cruz, CA

Richard Voss, IBM Watson Research Center, Yorktown Heights, NY

#### TOPICS

Characterization and Generation for Random Fractals/Voss

- Introduction to fractals
- Self-similarity
- Fractal dimension
- Modeling of mountains and clouds
- Stochastic music

Computer rendering of stochastic models/  
Fournier

- Surface and texture synthesis
- Special purpose hardware for stochastic modeling
- Adaptive subdivision

Fractal modeling of the living world/Oppenheimer

- Fractal modeling of trees
- Interactive design and animation of branching structures
- Fractals, computers and DNA
- Complexity

Fantastic fractals/Peitgen

- Mandelbrot sets
- Julia sets
- Frontiers in chaos
- Abstract mathematical fractals

Panel session on selected topics

Slide session of images contributed by course attendees

## COURSES

12

### DEVELOPMENTS IN RAY TRACING

*Tuesday — Intermediate*

#### CHAIR

Alan H. Barr, California Institute of Technology

#### LECTURERS

James Arvo, Apollo Computers, North  
Billerica, MA

Alan H. Barr, California Institute of Technology,  
Pasadena, CA

James F. Blinn, Jet Propulsion Laboratory,  
Pasadena, CA

Robert L. Cook, PIXAR/California Institute of  
Technology, San Rafael, CA

Masa Inakage, independent media artist and  
researcher, Tokyo, Japan

James T. Kajiya, California Institute of Tech-  
nology, Pasadena, CA

Turner Whitted, University of North Carolina,  
Chapel Hill, NC

#### TOPICS

Ray tracing

Developments in distributed ray tracing

Techniques for ray tracing deformations

Backwards ray tracing and caustics

Theoretical augmentation of ray tracing

The future of ray tracing

Ray traced animation

## COURSES

### **13** DIGITAL IMAGE PROCESSING FUNDAMENTALS

*Monday – Introductory*

#### *CHAIR*

R.C. Gonzalez, Perceptics Corporation/  
University of Tennessee

#### *LECTURER*

R.C. Gonzalez, Perceptics Corporation/  
University of Tennessee, Knoxville, TN

#### *TOPICS*

Introduction  
Digital image fundamentals  
Image transforms  
Image enhancement  
Image restoration  
Encoding (data compression)  
Image segmentation and description

## COURSES

### **14** ADVANCED IMAGE PROCESSING

*Tuesday — Advanced*

#### *CHAIR*

Tom Brigham, New York Institute of Technology

#### *LECTURERS*

Tom Brigham, New York Institute of Technology,  
Old Westbury, NY

Peter Burt, RCA David Sarnoff Research Center,  
Princeton, NJ

Loren Carpenter, PIXAR, San Rafael, CA

Paul Heckbert, Pacific Data Images,  
Sunnyvale, CA

Thomas G. Stockham, Jr., University of Utah,  
Provo, UT

#### *TOPICS*

Introduction/Brigham

Color image quantization/Heckbert

Gaussians and image processing/Heckbert

Filtering by repeated integration/Heckbert

Fully programmable image processing/Carpenter

Digital image compositing for motion pictures/  
Carpenter

Software architecture for an SIMD image  
processor/Carpenter

Pyramid methods for image processing/Burt

Merging images into mosaics/Burt

Interpolation, extrapolation and compression/  
Burt

Interaction for image processing/Brigham

Image registration/Brigham

Image processing for special effects/Brigham

Conflicts between representation and display/  
Stockham

Homomorphic enhancement of black and white  
and color images/Stockham

Visual modeling and measuring image quality/  
Stockham

## COURSES

15

### STATE OF THE ART IN IMAGE SYNTHESIS

*Monday – Advanced*

#### CHAIR

Robert L. Cook, PIXAR/California Institute of Technology

#### LECTURERS

Alan H. Barr, California Institute of Technology, Pasadena, CA

Robert L. Cook, PIXAR/California Institute of Technology, San Rafael, CA

Frank Crow, Xerox PARC, Palo Alto, CA

Tom Duff, AT&T Bell Labs, Murray Hill, NJ

Donald P. Greenberg, Cornell University, Ithaca, NY

#### TOPICS

Modeling and deformations/Barr

Stochastic sampling/Cook

Experiences in distributed execution/Crow

3-D compositing/Duff

Recent advances in splines/Duff

Global illumination: ray tracing and radiosity/  
Greenberg

## COURSES

16

### IMAGE RENDERING TRICKS

*Tuesday — Advanced*

#### CHAIRS

Turner Whitted, Numerical Design, Ltd./

University of North Carolina

Robert L. Cook, PIXAR/California Institute of  
Technology

#### LECTURERS

James F. Blinn, Jet Propulsion Laboratory/

California Institute of Technology, Pasadena, CA

Loren Carpenter, Lucasfilm Ltd., San Rafael, CA

Robert L. Cook, PIXAR/California Institute of  
Technology, San Rafael, CA

Roy Hall, Wavefront Technologies, Santa  
Barbara, CA

Turner Whitted, Numerical Design, Ltd./

University of North Carolina, Chapel Hill, NC

#### TOPICS

Advanced Chi-Ting/Blinn

Painless adaptive subdivision/Carpenter

Picture debugging/Cook

Hybrid rendering systems/Hall

Making high-quality images on microcomputers/  
Whitted

## COURSES

17

### INTERACTIVE LASER VIDEODISC: APPLICATIONS AND PRODUCTION

*Tuesday — Advanced*

#### CHAIR

Peter Crown, Romulus Productions Inc.

#### LECTURERS

Peter Crown, Romulus Productions Inc., New York, NY

Rockley Miller, *The Videodisc Monitor*, Arlington, VA

Bob Ogden, Ogden Microdesign, Conifer, CO

Pauline Ores, NYU Medical Center, New York, NY

Jennifer Scanlin, Romulus Productions Inc., New York, NY

#### TOPICS

Introduction to interactive videodisc

- The technology
- Applications
- Recent history
- Successes and failures

Matching the technology to the application

- Projects appropriate for disc
- How to evaluate the project

Project management

- Who's on the team
- Coordinating computer, video and instructional requirements

Videodisc productions

- How to prepare the pre-master tape
- Still-frame production
- Film transfer and flicker
- Level I, II and III

Graphics overlay

- Composite vs. RGB
- Combining live graphics over recorded video
- Overlay boards for the PC
- Graphics creation software
- Graphics presentation software
- CD-ROM applications

Examples from multimedia encyclopedia design

## COURSES

### 18 HOW TO DESIGN USER-COMPUTER INTERFACES

*Monday – Introductory*

#### CHAIR

James D. Foley, The George Washington University

#### LECTURERS

James D. Foley, The George Washington University, Washington, D.C.

John L. Sibert, The George Washington University, Washington, D.C.

#### TOPICS

Introduction/Foley

A methodology for designing user-computer interfaces/Foley

- Task analysis
- Conceptual and Semantic design
- Syntactic and Lexical design
- Documentation design
- Design review and prototyping
- Implementation
- User interface debugging
- Evaluation methodologies

Guidelines for designing user interfaces/Foley, Sibert

- Feedback, messages and prompts
- Menus
- Interaction design
- Help and error messages
- Response time
- Consistency
- Organization of visual presentations
- Style guides

Interaction tasks, techniques and devices/Sibert

- Types of interaction tasks
- Interaction devices
- A methodology for selecting techniques and devices
- Design issues for continuous feedback

User interface management systems (UIMS)/Foley

- What is a UIMS
- Structure of a UIMS
- Examples of UIMSs

## COURSES

19

### ADVANCED TOPICS – HUMAN FACTORS IN COMPUTING SYSTEMS

*Tuesday – Advanced*

#### CHAIRS

Jack D. Grimes, Intel Corporation

Michael E. Atwood, ITT-ATC

#### LECTURERS

Michael E. Atwood, ITT-ATC, Shelton, CT

Ruven Brooks, Schlumberger-Doll Research,  
Ridgefield, CT

Jack D. Grimes, Intel Corporation,  
Santa Cruz, CA

Aaron Marcus, Aaron Marcus and Associates,  
Berkeley, CA

H. Rudy Ramsey, Newtown, CT

John Wyman, ITT-ATC, Shelton, CT

#### TOPICS

Introduction and guide to the literature/Grimes

Screen design and color for user interfaces/  
Marcus

A developer's view of window systems/Wyman

On-line help; documentation systems/Atwood

What AI can do for the user interface/Brooks

Questions & Answers/All

## COURSES

20

### HUMAN COMPUTER INTERACTION: SELECTED THEORIES, TECHNOLOGIES, TECHNIQUES AND TOOLS

*Monday – Intermediate*

#### *CHAIRS*

William Buxton, University of Toronto

Ronald Baecker, University of Toronto

#### *LECTURERS*

Ronald Baecker, University of Toronto, Toronto, Ontario

William Buxton, University of Toronto, Toronto, Ontario

#### *TOPICS*

Introduction/Buxton

Theories; chunking and phrasing/Buxton

Technologies

- Haptic input/Buxton

- Audio I/O/Buxton

- Graphical output/Baecker

Interaction techniques/Baecker

User interface management tools/Buxton

## COURSES

21

### ANIMATION APPRECIATION

*Monday — Introductory*

#### CHAIR

Maxine D. Brown, Maxine Brown Associates

#### LECTURERS

Maxine D. Brown, Maxine Brown Associates, Los Angeles, CA

Glenn Entis, Pacific Data Images, Sunnyvale, CA

George Joblove, Industrial Light & Magic,

Lucasfilm Ltd., San Rafael, CA

Douglas S. Kay, Industrial Light & Magic,

Lucasfilm Ltd., San Rafael, CA

Bruce Nicholson, Industrial Light & Magic,

Lucasfilm Ltd., San Rafael, CA

Rich Thorne, The Post Group, Hollywood, CA

#### TOPICS

Animation overview/Brown

Objects: how to build and render objects/Joblove, Kay

- How a scene is described to the computer
- How a scene is represented in the computer
- How the computer creates an image of the scene
- Scene elements to be considered

Motion: how to get from point A to point B/Entis

- How motion is described to the computer
- How motion is represented in the computer
- Adding realism to motion
- The tough stuff: current animation problems

Digital video effects/Thorne

- The three essentials of graphic production
- Equipment: what we use; how it works
- Real time reflection and texture mapping
- Matte painting
- Building effects

Composite photography/Nicholson

- Optical printing techniques
- Compositing with computer graphics
- Equipment: what we use; how it works
- Composite photography on optical printers vs. computer compositing

Film and video show/Brown

## COURSES

22

### ADVANCED COMPUTER ANIMATION

*Tuesday – Advanced*

#### CHAIR

Judson Rosebush, The Judson Rosebush Company Inc.

#### LECTURERS

Bill Kroyer, Digital Productions, Los Angeles, CA

Craig Reynolds, Symbolics, Westwood, CA

Judson Rosebush, The Judson Rosebush

Company Inc., New York, NY

Mark Voelpel, The Fantastic Animation Machine, New York, NY

#### TOPICS

Basic principles of animation/Rosebush

- Animation applications
- Action techniques
- Simulation

Control of time and dynamics/Reynolds

- Representation of time
- Dynamics and constraints
- Scripting systems

Easing: controlling rates of change/Voelpel

- Basics; the kinegraph
- Easing techniques
- Motion pathways

Character animation/Kroyer

- Representation of models
- Animating using hierarchies
- “Hard Woman” case study

## COURSES

23

### COMPUTER ANIMATION: 3-D MOTION SPECIFICATION AND CONTROL

*Monday — Intermediate*

#### CHAIR

David Sturman, New York Institute of Technology

#### LECTURERS

Glenn Entis, Pacific Data Images, Sunnyvale, CA

Julian Gomez, RIACS, NASA Ames Research  
Center, Moffett Field, CA

David Sturman, New York Institute of Tech-  
nology, Old Westbury, NY

Susan Van Baerle, New York Institute of Tech-  
nology, Old Westbury, NY

Jane Wilhelms, University of California, Santa  
Cruz, CA

#### TOPICS

Keyframing techniques/Sturman

Parameterization techniques/Sturman

Motion control at NYIT/Sturman

Scripting techniques/Entis

Motion control at PDI/Entis

Event-driven animation/Gomez

The Twixt animation system/Gomez

Inverse kinematics/Wilhelms

Dynamic analysis/Wilhelms

Character animation/Van Baerle

## COURSES

24

### COMPUTER ANIMATION USING VIDEO TECHNIQUES

*Tuesday — Introductory*

#### CHAIR

Ed Kramer, CompuGraph Designs/MTI

#### LECTURERS

Carol Chiani, The Video Computer Animation Workshop, New York, NY

Mike Jackson, American Video Factory, Los Angeles, CA

Ed Kramer, CompuGraph Designs/MTI, New York, NY

Maury Rosenfeld, The Post Group, Hollywood, CA

#### TOPICS

Introduction to video techniques/Kramer

- What video is
- Production switcher effects
- Raster rescan effects
- Digital video effects
- Course overview

Video paint systems/Chiani

- Paint systems overview
- 2-D paint systems — LUMENA, ARTRONICS, VIA VIDEO, QUANTEL PAINTBOX
- 3-D animation with CUBICOMP — a demonstration

Advanced video rendering — the Bosch FGS-4000/Kramer

Special effects editing/Jackson

- The edit bay
- Animating with the ADO

The video animation production house/Rosenfeld

- MIRAGE effects and programming
- Integrating animation tools and techniques
- Video in the digital domain

## COURSES

25

### UNDERSTANDING THE COMPUTER GRAPHICS VIRTUAL DEVICE INTERFACE (CG-VDI)

*Monday — Intermediate*

#### CHAIR

Peter R. Bono, Peter R. Bono Associates, Inc.

#### LECTURERS

David B. Arnold, University of East Anglia,  
Norwich, England

Peter R. Bono, Peter R. Bono Associates, Inc.,  
Gales Ferry, CT

#### TOPICS

Introduction/Bono

Overview and motivation/Bono

- Purpose/goals/scope
- Who benefits and how
- Where CG-VDI fits in with the other standards
- Structure of the standard; option sets

Functional areas/Arnold

- Output primitives
- Attributes
- Segmentation functions
- Control, negotiation and inquiry
- Raster
- Input

Accessing the standard/Bono

- Language bindings
- Data stream bindings

Key issues and conformance rules/Bono

Questions and wrap-up/Bono, Arnold

## COURSES

26

### AN INTRODUCTION TO PHIGS: THE PROGRAMMER'S HIERARCHICAL INTERACTIVE GRAPHICS SYSTEM

*Tuesday — Introductory*

#### CHAIR

Deborah U. Cahn, Boeing Computer Services

#### LECTURERS

Deborah U. Cahn, Boeing Computer Services,  
Bellevue, WA

Michael Heck, Megatek, San Diego, CA

Eileen McGinnis, Hewlett-Packard, Palo Alto, CA

Richard F. Puk, Puk Consulting Services,  
Carlsbad, CA

#### TOPICS

Introduction/Cahn

Overview/Cahn

- Status of PHIGS
- Scope, goals, constituency
- Relationship to GKS

Basic concepts and reference models/McGinnis

Graphical data definition/Cahn

- Structures
- Structure elements
- Structure editing
- Archives

Graphical data display/McGinnis

- Posting
- Structure traversal
- Display update

The transformation pipeline/Heck

- Modeling
- Viewing
- Workstation transformation
- Clipping
- Coordinate systems

Interactivity/Puk

- Input model
- Name sets and classes

Implementation experience/Heck

## COURSES

27

### INTEGRATING MUSIC AND GRAPHICS

*Monday — Introductory*

#### CHAIR

Bruce McDiffett, Nebulus Systems

#### LECTURERS

William Buxton, University of Toronto, Toronto, Ontario

David Levitt, MIT Media Laboratory, Cambridge, MA

Bruce McDiffett, Nebulus Systems, St. Louis, MO

Todd Rundgren, Alchemedia Productions, Woodstock, NY

Tom Seufert, Visual Music Productions, Tarzana, CA

Ed Tannenbaum, Eddeo Inc., Crockett, CA

#### TOPICS

Real-time systems/Tannenbaum

Setting up and operating an affordable studio/ Seufert

A review of currently available hardware and software/McDiffett

User interfaces, predictions for music/graphics based on the development of computer music/ Buxton

Visual tools for analyzing and creating music/ Levitt

Music industry developments, maintaining artistic integrity/Rundgren

## COURSES

28

### PC-BASED SYSTEMS FOR PROFESSIONAL QUALITY GRAPHICS

*Monday — Intermediate*

#### CHAIR

Susan Bickford, Computer Arts Forum

#### LECTURERS

Susan Bickford, Computer Arts Forum, New York, NY

Jerry Cahn, Brilliant Image, New York, NY

Janice Hillman, Maryland Institute College of Art, Baltimore, MD

Lou Katz, Network Picture Systems, Santa Clara, CA

#### TOPICS

Two-dimensional illustration/Bickford

- System components
- System types
- Video digitizing and image processing
- Price vs. performance issues
- Output options

Presentation graphics/Cahn

- Rationale and types
- Advantages to computerization
- In-house and service bureau options
- Organizing your company's graphics capabilities

Three-dimensional graphics and animation/Katz

- Planning and design for 3-D
- Features of 3-D systems
- Motion scripting
- Real-time animation systems
- Animation techniques
- Configuring a system: hardware
- Configuring a system: software
- Operating systems
- Output devices

Pagination/Hillman

- Workstation alternatives
- Bringing it all together: line art and continuous tone
- Page make up
- Font and font design
- Output solutions

## COURSES

29

### DOCUMENTATION GRAPHICS

*Tuesday — Intermediate*

#### CHAIR

Richard J. Beach, Xerox PARC

#### LECTURERS

Richard J. Beach, Xerox PARC, Palo Alto, CA

Chuck Bigelow, Bigelow & Holmes, San Francisco, CA

Jock Mackinlay, Stanford University, Stanford, CA

Maureen Stone, Xerox PARC, Palo Alto, CA

#### TOPICS

Graphic arts quality issue/Beach

- Resolution and media variance
- Color and grey-scale reproduction across devices

Digital typography/Bigelow

- Font representations, character sets, metrics, legibility issues
- Typographic organization

2-D imaging model/Stone

- Device and resolution-independent images
- Imaging primitives and operators

Page description languages/Beach

- Representing the page through a 2-D imaging model
- Describing and rendering documents
- Survey of Interpress and PostScript languages

From rendering to editing/Beach

- Documentation problem is greater than the sum of its parts

Illustration programs/Stone

- Illustration models presented to user
- Resources required
- Graphic arts quality issues

Graphical style/Beach

- Separating geometrical content from rendering form

Presentation tools/Mackinlay

- Automated selection and creation of graphical presentations

Wrapup/Beach

- System issues for documentation graphics
- Day in the life of real publishing

## COURSES

30

### FINANCING AND ASSET MANAGEMENT OF THE DEVELOPING, HIGH GROWTH COMPUTER GRAPHICS COMPANY

*Tuesday — Introductory*

#### CHAIRS

H. Stephen Hurst, Arthur Young & Company  
Harold E. Meier, Gardere & Wynne

#### LECTURERS

Joseph H. Bowles, Arthur Young & Company,  
Dallas, TX

Michael D. Craig, Gardere & Wynne, Dallas, TX

Donald A. Erickson, Arthur Young & Company,  
Dallas, TX

Suzan E. Fenner, Gardere & Wynne, Dallas, TX

Ronald M. Gaswirth, Gardere & Wynne,  
Dallas, TX

James C. Harris, Arthur Young & Company,  
Dallas, TX

Diane C. Hately, Arthur Young & Company,  
Dallas, TX

David H. Judson, Gardere & Wynne, Dallas, TX

John T. Kipp, Gardere & Wynne, Dallas, TX

Kenneth M. Neisman, Gardere & Wynne,  
Dallas, TX

James E. Skinner, Arthur Young & Company,  
Dallas, TX

G. Duffield Smith, Jr., Gardere & Wynne,  
Dallas, TX

Richard F. Smith, Gardere & Wynne, Dallas, TX

James G. Wolf, Arthur Young & Company,  
Dallas, TX

Dan W. Youse, Arthur Young & Company,  
Dallas, TX

#### TOPICS

Financing the developing, high growth company/  
Craig, Kipp

Maximizing the value of high tech firms/Bowles,  
Erickson, Wolf

- Maximizing after-tax value of assets

Financing research and development/Neisman,  
R.F. Smith

- Existing products
- Expanding product line

## COURSES

30

### FINANCING AND ASSET MANAGEMENT OF THE DEVELOPING, HIGH GROWTH COMPUTER GRAPHICS COMPANY

*Tuesday — Introductory*

#### TOPICS

- In-house efforts
- Contractual agreements for third party development

Maintaining a strong management team through compensation planning/Fenner, Gaswirth, Harris, Skinner

- Labor contracts
- Pension plans
- Executive compensation
- Financial accounting

Cashing in on the closely-held business/Harris, Hately, Youse

- Alternatives to the initial public offering
- Financial structure and tax implications of alternatives

Protecting trade secrets/Judson, G.D. Smith, Jr.

- The importance of sound contractual arrangements
- Various approaches for protection
- Requirements for protecting trade secrets as viewed from the trial lawyer's perspective

## TECHNICAL PROGRAM — WEDNESDAY

### OPENING SESSION

9:00-10:30, Arena

#### *SIGGRAPH REPORT*

Kellogg S. Booth

#### *SIGGRAPH '86 WELCOME*

Ellen Gore, Ray Elliott

#### *A CONFERENCE OVERVIEW —*

‘There’s more here than meets the eye.’

#### *1986 SIGGRAPH AWARD*

Presented by Bertram Herzog

### *PAPER*

#### **APPLICATIONS OF INCREMENTAL RENDERING**

10:45-12:15, Arena

#### *CHAIR*

Ambrose Hoffmann, Avco-Lycoming

Real-Time Shaded NC Milling Display

Tim Van Hook, VEW Inc.

A Differential Compiler for Computer Animation

Michel Denber, Xerox Corporation

Paul Turner, consultant

Image Rendering by Adaptive Refinement

Larry Bergman, University of North Carolina at Chapel Hill

Henry Fuchs, University of North Carolina at Chapel Hill

Eric Grant, University of North Carolina at Chapel Hill

Susan Spach, Hewlett-Packard Laboratories

*PANEL*

**COMPUTER GRAPHICS IN SCIENTIFIC ANIMATION**

10:45-12:15, Theatre

*CHAIR*

Pauline Ores, New York University Medical Center

The production of computer generated scientific animation is an important and expanding activity within research organizations as well as companies which specialize in the production of computer graphics. Developments in medical imaging, computer graphic modeling and turnkey animation systems have increased the scope of this type of animation, enabling it to effect changes in the fields of education, science, medicine, pharmacology and entertainment.

The panelists address such topics as design issues in communicating scientific information, modeling organic forms, the use of research data for modeling and animation, insights for research that can be gained in the process of visualization and future developments in scientific animation.

*PANELISTS*

James F. Blinn, Jet Propulsion Laboratory  
Don Stredney, Cranston/Csuri Productions, Inc.  
Craig Upson, Digital Productions

## TECHNICAL PROGRAM — WEDNESDAY

### *PAPER*

#### **NATURAL PHENOMENA I**

1:45-3:15, Arena

### *CHAIR*

James T. Kajiya, California Institute of  
Technology

The Definition and Rendering of Terrain Maps  
Gavin Miller, Cambridge University

The Synthesis of Cloth Objects  
Jerry Weil, AT&T Bell Laboratories

Real Time Design and Animation of Fractal  
Plants and Trees  
Peter Oppenheimer, New York Institute of  
Technology

## TECHNICAL PROGRAM — WEDNESDAY

### *PANEL*

#### THE FUTURE OF WINDOW SYSTEMS

1:45-3:15, Theatre

### *CHAIR*

David S. H. Rosenthal, Sun Microsystems

Window systems have become a part of life for users and programmers of both PCs and workstations. But both have to live with systems that are often complex and incompatible with one another. The complexity of the user interface appears in the number of options expressing the user's preferences, and the incompatibility in the differences both between systems and between applications in one system. The complexity of the programmer interface appears in huge manuals and libraries, and the incompatibilities are evident to anyone trying to port applications between window systems.

A panel of window system developers and standards representatives address the questions of whether the complexities and incompatibilities are inevitable, and what is being done to reduce them.

### *PANELISTS*

John Butler, Microsoft

Jim Gettys, MIT

Brad Myers, University of Toronto

Larry Tesler, Apple Computer

## TECHNICAL PROGRAM — WEDNESDAY

### *PAPER*

#### **NATURAL PHENOMENA II**

3:30-5:00, Arena

### *CHAIR*

Henry Fuchs, University of North Carolina at Chapel Hill

Modeling Waves and Surf

Darwyn Peachey, University of Saskatchewan

A Simple Model of Ocean Waves

Alain Fournier, University of Toronto

Bill Reeves, Lucasfilm Ltd.

Combining Physical and Visual Simulation —

Creation of the Planet Jupiter for the Film “2010”

Larry Yaeger, Digital Productions

Craig Upson, Digital Productions

Robert Myers, Poseidon Research

## TECHNICAL PROGRAM — WEDNESDAY

### *PANEL*

#### **COMPUTER GRAPHICS APPLICATION AND SYSTEM TRENDS IN THE JAPANESE PRINTING INDUSTRY**

3:30-5:00, Theatre

### *CHAIR*

Laurin Herr, Pacific Interface Inc.

This panel provides an overview of the market for computer graphics in the Japanese printing industry, discusses system and application trends including implications for computer aided publishing (CAP), and presents recent examples of both commercial and artistic print output. Particular attention is paid to some of the fundamental problems facing vendors and users in Japan, including:

- Need for very high resolution fonts containing thousands of characters (Kanji), simultaneous access to multiple fonts and horizontal/vertical writing.
- User interface design for technicians and artists with limited English language abilities, limited computer experience and limited familiarity with keyboards of any type.
- Development and utilization of more compact, less expensive systems.

### *PANELISTS*

Yoshihiko Azuma, Image & Information  
Research Institute, Dainippon Printing Co., Ltd.

Takeo Fukuzawa, Texnai Inc.

Masa Inakage, independent media artist and  
researcher

## TECHNICAL PROGRAM — THURSDAY

### *PAPER*

#### **FAST RENDERING TECHNIQUES**

9:00-10:30, Arena

### *CHAIR*

Mike Bailey, Megatek Corporation

A Fast Shaded-Polygon Renderer

Roger W. Swanson, Hewlett-Packard Company

Larry J. Thayer, Hewlett-Packard Company

Fast Phong Shading

Gary Bishop, AT&T Bell Laboratories

David M. Weimer, AT&T Bell Laboratories

Fast Constructive Solid Geometry Display in the  
Pixel-Powers Graphics System

Jack Goldfeather, Carleton College

Jeff Hultquist, University of North Carolina at  
Chapel Hill

Henry Fuchs, University of North Carolina at  
Chapel Hill

## TECHNICAL PROGRAM — THURSDAY

### *PANEL*

#### **APPLICATIONS OF INTERACTIVE DIGITAL IMAGE PROCESSING**

9:00-10:30, Theatre

### *CHAIR*

Tom Brigham, New York Institute of Technology

This panel session presents and discusses new uses of digital image processing techniques in commercial and artistic applications. Members of the panel present their own work, review the precedents of image manipulations, and identify applications where digital image processing is not now, but could be, applied. These techniques are placed on a historical continuum pointing toward future possibilities. The panel discusses applications such as facial image composite development, plastic surgery previewing and colorization of original black and white films. Reference is made to the issue of interaction and the creative/production process.

### *PANELISTS*

Tom Brigham, New York Institute of Technology

Nancy Burson, Face Systems Inc.

David Kramlich, Face Systems Inc.

Ralph Weinger, Color Systems Technologies

Lance Williams, Computer Graphics Laboratory

## TECHNICAL PROGRAM — THURSDAY

### *PAPER*

#### **LIGHTING MODELS**

10:45-12:15, Arena

### *CHAIR*

David Rogers, United States Naval Academy

Atmospheric Illumination and Shadows

Nelson Max, Lawrence Livermore National  
Laboratory

Continuous Tone Representation of  
Three-Dimensional Objects Illuminated  
by Sky Light

Tomoyuki Nishita, Fukuyama University

Eihachiro Nakamae, Hiroshima University

A Radiosity Method for Non-Diffuse  
Environments

David S. Immel, Cornell University

Michael F. Cohen, Cornell University

Donald P. Greenberg, Cornell University

The Rendering Equation

James T. Kajiya, California Institute of  
Technology

## TECHNICAL PROGRAM — THURSDAY

### *PANEL*

#### **AN APPLICATION OVERVIEW OF PROGRAM VISUALIZATION**

10:45-12:15, Theatre

### *CHAIR*

Ronald Baecker, University of Toronto

Program visualization is the use of the technology of interactive computer graphics and the crafts of graphic design, typography, animation and cinematography to enhance the presentation and understanding of computer programs. Program visualization is related to but distinct from the discipline of visual programming, which is the use of various two-dimensional or diagrammatic notations in the programming process.

The panel attempts to present a broad overview of program visualization as an emerging and significant application of computer graphics. Topics include: an introduction to program visualization; the role of graphic design; the enhanced presentation of program source text; the effective use of diagrams; the animation of program execution; interacting with the program as an animated object; the design of systems to produce visualizations automatically from minimally changed program source; applications of program visualization; and open problems and research frontiers.

### *PANELISTS*

Marc Brown, Brown University

Ralph L. London, Tektronix, Inc.

Aaron Marcus, Aaron Marcus and Associates

## TECHNICAL PROGRAM — THURSDAY

### *PAPER*

#### **GEOMETRIC MODELING I**

1:45-3:15, Arena

### *CHAIR*

Tom Jensen, Evans & Sutherland Computer Corporation

Free-Form Deformation of Solid Geometric Models

Thomas W. Sederberg, Brigham Young University  
Scott Parry, Brigham Young University

Constructive Solid Geometry for Polyhedral Objects

David H. Laidlaw, Brown University  
W. Benjamin Trumbore, Brown University  
John F. Hughes, Brown University

Automated Conversion of Curvilinear Wire-Frame Models to Surface Boundary Models; A Topological Approach

Stephen Mark Courter, Engineering Systems Corporation  
John A. Brewer, Louisiana State University

## TECHNICAL PROGRAM — THURSDAY

### *PANEL*

#### **HARDWARE VERSUS SOFTWARE**

1:45-3:15, Theatre

### *CHAIR*

Carl Machover, Machover Associates Corporation

This panel considers the assertion that workstations incorporating special devices — coprocessors, array processors, tiling engines, geometry engines — offer hardware solutions to specific functions that are more effective than traditional software solutions. However, not all practitioners agree with that contention. Some people believe that performance, flexibility and price are compromised by incorporating unique hardware solutions. In a sense, issues that the graphic field has faced for the last three decades are being reconsidered. Early on, the battle of hardware-versus-software character generators, hardware-versus-software vector generators and hardware-versus-software wireframe rotators was fought. Today, people are suggesting putting drafting packages on a chip.

This panel brings together proponents of both points of view to discuss arguments and to forecast where each path might lead.

### *PANELISTS*

Nick England, Trancept Systems

Clifford L. Hirsch, Genigraphics GP

Ian Hirschhorn, Superset, Inc.

Anders Vinberg, ISSCO

## TECHNICAL PROGRAM — THURSDAY

### *PAPER*

#### **GEOMETRIC MODELING II**

3:30-5:00, Arena

### *CHAIR*

Robin Forrest, University of East Anglia

An Adaptive Subdivision Method for Surface-Fitting From Sampled Data

Francis J. M. Schmitt, Laboratoire Image, Ecole Nationale Supérieure des Télécommunications

Brian Barsky, University of California, Berkeley

Wen-Hui Du, Laboratoire Image, Ecole

Nationale Supérieure des Télécommunications

Managing Geometric Complexity With Enhanced Procedural Models

Phillip Amburn, University of North Carolina at Chapel Hill

Eric Grant, University of North Carolina at Chapel Hill

Turner Whitted, University of North Carolina at Chapel Hill

A Consistent Hierarchical Representation for Vector Data

Randal C. Nelson, University of Maryland

Hanan Samet, University of Maryland

## TECHNICAL PROGRAM — THURSDAY

### *PANEL*

#### **COLOR ISSUES IN THE USER INTERFACE DESIGN**

3:30-5:00, Theatre

### *CHAIR*

Aaron Marcus, Aaron Marcus and Associates

Rapid growth of sophisticated color displays has put programmers in a difficult decision-making situation. Developers and users want to know what colors to select and how to design with color as a powerful tool for communication in the user interface. Unfortunately most programmers have little expertise in the science, theory or application of color. Color selection is often made subjectively with no consideration of the physiological or psychological effects on the user. Graphic design factors such as legibility and readability are often ignored.

This panel addresses key issues in color from three points of view: (1) the physiological, psychological and human factors perspective, (2) the information-oriented graphic design perspective and (3) the perspective of the builder of an expert system for color selection in the user interface currently being designed at Brown University.

### *PANELISTS*

Michael Arent, Aaron Marcus and Associates

Barbara Meier, Brown University

JoAnn M. Taylor, Tektronix, Inc.

## TECHNICAL PROGRAM — FRIDAY

### *PAPER*

#### IMAGING TECHNIQUES

9:00-10:30, Arena

### *CHAIR*

Gary Rogers, Superset

A Montage Method: The Overlaying of the  
Computer Generated Images Onto a Background  
Photograph

Eihachiro Nakamae, Hiroshima University

Koichi Harada, Hiroshima University

Takao Ishizaki, Hiroshima University

Tomoyuki Nishita, Fukuyama University

Two Bit/Pixel Full Color Encoding

Graham Campbell, The University of Illinois  
at Chicago

Thomas A. DeFanti, The University of Illinois  
at Chicago

Jeff Frederiksen, The University of Illinois  
at Chicago

Stephen A. Joyce, The University of Illinois  
at Chicago

Lawrence A. Leske, The University of Illinois  
at Chicago

John A. Lindberg, The University of Illinois  
at Chicago

Daniel J. Sandin, The University of Illinois  
at Chicago

Hairy Brushes

Steve Strassmann, MIT Media Laboratory

## TECHNICAL PROGRAM — FRIDAY

### *PANEL*

#### **RAMIFICATIONS OF INTEGRATING COMPUTING INTO THE CREATIVE PROCESS IN THE ARTS**

9:00-10:30, Theatre

### *CHAIR*

Joan Truckenbrod, The School of the Art Institute of Chicago

New directions in artistic expression are emerging as artists integrate computing systems into the creative process. Artists working with computer-related devices probe the nature of this electronic medium and its relationship to the creative process. However, the ramifications of pursuing creative work in this context raises significant issues for the artist.

What impact does this technology have on the artist, the creative process and the final artwork? Does the computing environment function like a template that predisposes the creative process and the nature of the artwork? Does the computer act as a catalyst, stimulating creative thought? How will the artwork be effected by the nature of computing and the various input, processing and output devices?

As we pursue new directions in artistic expression, it is essential to address these issues in order to develop an in-depth understanding of the “context of computing” and its effect on creative expression.

### *PANELISTS*

Darcy Gerbarg, New York City School of Visual Arts

Cynthia Goodman, Guggenheim Museum

Rus Gant, Massachusetts Institute of Technology

## TECHNICAL PROGRAM — FRIDAY

### *PAPER*

#### **USER INTERFACES**

10:45-12:15, Arena

### *CHAIR*

R. Daniel Bergeron, University of New Hampshire

Snap-Dragging

Eric Allan Bier, Xerox Corporation

Maureen C. Stone, Xerox Corporation

A Multitasking Switchboard Approach to User Interface Management

Peter P. Tanner, National Research Council of Canada

Stephen A. Mackay, National Research Council of Canada

Darlene A. Stewart, National Research Council of Canada

Marceli Wein, National Research Council of Canada

Creating Highly-Interactive and Graphical User Interfaces by Demonstration

Brad A. Myers, University of Toronto

William Buxton, University of Toronto

An Object-Oriented User Interface Management System

John L. Sibert, The George Washington University

William D. Hurley, The George Washington University

Teresa W. Bleser, The George Washington University

## TECHNICAL PROGRAM — FRIDAY

### *PANEL*

#### COMPUTER ANIMATION IN THE FIFTH GENERATION

10:45-12:15, Theatre

### *CHAIR*

David Zeltzer, Massachusetts Institute of Technology

Beyond the steadily increasing visual complexity and realism of computer generated animation, recent research in computer graphics, artificial intelligence, robotics, VLSI and supercomputing will have a profound impact on the way we think of computer graphics and animation, and on the human-computer interface. Panelists describe the application of artificial intelligence to computer animation, and discuss the importance of integrating both robotics and knowledge engineering technologies in computer animation systems to give the full power of computer animation to both expert and non-expert users.

The “Vivarium” project is discussed, which deals with a class of interactive learning tools aimed at developing models of biological habitats and animal behavior that can be used to drive animated simulations of evolutionary processes. A VLSI-based graphics system called PIXEL-PLANES, which is capable of generating shaded views of objects for real time animation, is described. Finally, the panel discusses the impact of supercomputers, such as the Cray XMP, on computer animation.

### *PANELISTS*

Norman I. Badler, University of Pennsylvania

Gary Demos, Digital Productions

Henry Fuchs, University of North Carolina at Chapel Hill

Alan Kay, Apple Computer

## TECHNICAL PROGRAM — FRIDAY

### *PAPER*

#### **RAY TRACING**

1:45-3:15, Arena

### *CHAIR*

James F. Blinn, Jet Propulsion Laboratory

Ray Tracing Complex Scenes

Timothy L. Kay, California Institute of  
Technology

James T. Kajiya, California Institute of  
Technology

Ray Tracing Parametric Surface Patches Utilizing  
Numerical Techniques and Ray Coherence

Kenneth I. Joy, University of California at Davis  
Murthy N. Bhetanabhotla, University of California  
at Davis

Ray Tracing Deformed Surfaces

Alan H. Barr, California Institute of Technology

## TECHNICAL PROGRAM — FRIDAY

### *PANEL*

#### **KNOWLEDGE-BASED COMPUTER GRAPHICS: INTERSECTIONS OF AI AND COMPUTER GRAPHICS**

1:45-3:15, Theatre

### *CHAIR*

Marek Holynski, Massachusetts Institute  
of Technology

As graphic interaction becomes more and more complex, present computer-graphics technology for managing such interaction becomes increasingly inadequate. Knowledge-based graphics systems, using domain-specific knowledge, may be the key to powerful new techniques for interaction management. Knowledge-based graphics systems tie the meaning of a picture to its graphics representation and, through these underlying relationships, support the user in deciding about graphics presentation. These systems use artificial intelligence techniques that help to organize and manipulate knowledge specific to graphics in the form of semantic networks, rules and constraints. This panel reviews and discusses some of the promising new directions that are beginning to emerge in this exciting area.

This panel considers the following topics: recent work on constraint-based graphics; rules for determining the objects to be shown in a picture; matching levels of abstraction to the user's need to control detail; graphical definitions of new kinds of constraints and the use of constraints in a "viewing and filtering" model of user interfaces; a general framework for the graphic input problem, i.e., how to recognize potentially ambiguous input; problems of reference in graphic interaction; adaptive graphics interfaces; application of inductive learning techniques for an effective visual representation; inference reasoning for scene composition.

### *PANELISTS*

Alan Borning, University of Washington

Steven Feiner, Columbia University

Mark Friedell, Harvard University

Fanya Montalvo, Massachusetts Institute  
of Technology

## TECHNICAL PROGRAM — FRIDAY

### *PAPER*

#### **ANTI-ALIASING**

3:30-5:00, Arena

### *CHAIR*

Frank Crow, Xerox PARC

Adaptive Precision in Texture Mapping

Andrew Glassner, University of North Carolina at Chapel Hill

Anti-Aliasing in Topological Color Spaces

Kenneth Turkowski, CIMLINC Incorporated

Filtering by Repeated Integration

Paul S. Heckbert, Pacific Data Images

## TECHNICAL PROGRAM — FRIDAY

### *PANEL*

#### UTILIZING ARRAY PROCESSORS AS GRAPHIC AND IMAGE PROCESSING ENGINES

3:30-5:00, Theatre

### *CHAIR*

John Montelione, Mercury Computer Systems

As a computational coprocessor, array processors are utilized to off-load general purpose computers for the performance of sophisticated algorithms in images, graphics and simulation processing.

Advancements in computer technology (for pipelined architectures), shared memory implementation and VLSI arithmetic processors have dramatically changed the utility and performance/price ratio of array processors. This, in turn, has resulted in widespread usage of array processors in applications as diverse as optical inspection, electronic publishing, seismic data analysis, medical imaging and mapping, reconnaissance and solids modeling and finite element analysis.

The panel session focuses primarily on four principal issues in the utilization of array processors:

- Applications/algorithms which can benefit from array processors.
- Programming issues.
- Tightly vs. loosely coupled interface to host computer.
- Performance “Mflop ratings” vs. actual throughput.

A secondary issue which the panel addresses is emerging technologies in coprocessor design.

### *PANELISTS*

Ian Currington, Floating Point Systems

Trey Greer, University of North Carolina at Chapel Hill

Wayne Igo, Geoscan, Inc.

Barry Isenstein, Mercury Computer Systems

## EXHIBITORS

### ABEKAS VIDEO SYSTEMS, INC.

Booth 1367

353A Vintage Park Drive  
Foster City, California 94404

(415) 571-1711

Junaid Sheikh

Vice President, Marketing

Abekas will exhibit the A62 Digital Disk Recorder. The A62 is a compact, Winchester Disk based real-time digital video recorder with storage capacities of 50 to 100 seconds. Features include random access, variable speed playback, internal digital matting and simultaneous record/play capability.

### ABEL IMAGE RESEARCH

Booth 433

953 N. Highland Ave.

Los Angeles, California 90024

(213) 462-8100

John Kamps and Hank Weghorst

Abel Image Research, a company with over 15 years experience in production of computer generated imagery, has established itself as a preeminent supplier of 3-D computer graphic software and production. The software provides a coupling of CAD/CAM/CAE systems with advanced computer animation. Applications include sales, marketing, engineering, design, education/training and commercial production.

### ACADEMIC PRESS INCORPORATED

Booth 1461

6277 Sea Harbor Drive

Orlando, Florida 32887

(305) 345-2778

Belinda Goodmark

National Exhibits Coordinator

User Group Contact: Belinda Goodmark

Academic Press Inc. will be exhibiting scientific books and journals.

## EXHIBITORS

### ACS INTERNATIONAL, INC.

Booth 1625

2105 Luna Road, Suite 330

Carrollton, Texas 75006

(214) 247-5151

Om P. Singla

President

ACS will exhibit American-made board level IBM compatible products, including the ACS-1000 single board computer that runs at IBM XT compatible speeds of 4.7 & 8 MHz and offers 1 Mbyte RAM on board. The GraphAx 20/20 graphics processor with 2K x 2K virtual memory will be on display featuring hardware real-time pan and 300m, offering AutoCAD support. Also shown will be ET-286 plus, an IBM AT compatible, with speeds of 6, 10 & 12.5 MHz, 4 Mbyte memory, three serial and parallel ports on board.

### ADAGE, INC.

Booth 828

One Fortune Drive

Billerica, Massachusetts 01821

(617) 663-8550

George Drewett

Vice President, Marketing

Adage, Inc., together with its Lexidata Division, designs, manufactures, markets and services interactive computer graphics workstations and display processors. The company's products are used in a variety of application areas such as Computer-Aided Design/Engineering/Manufacturing (CAD/CAE/CAM), defense, oil exploration and medical imaging.

### ADDISON-WESLEY PUBLISHING COMPANY

Booth 845

One Jacob Way

Reading, Massachusetts 01867

(617) 944-3700

Keith Wollman

Acquisitions Editor

## EXHIBITORS

Addison-Wesley is a leading computer science publisher with a well established reputation in computer graphics. The best selling *Fundamentals of Interactive Computer Graphics*, by James Foley and Andries van Dam, forms the core of the graphics list. Addison-Wesley also has a large and formidable list of artificial intelligence books. Stop by booth #845 to peruse these and other leading computer science texts.

### ADVANCED COLOR TECHNOLOGY, A SUBSIDIARY OF POLAROID CORPORATION

Booth 632

21 Alpha Road

Chelmsford, Massachusetts 01824

(617) 256-1222

Alan Barrett

Director of New Technology Development

User Group Contact: John Frothingham

Applications Engineer

A.C.T. will exhibit both the ACT II and the Chromajet 4000. The Chromajet 4000 is a new product which will be released in the fourth quarter. This product will be capable of doing very high resolution color graphics and near letter-quality text. A.C.T. is emphasizing the capability to produce photographic quality hard copy both in reflective and transparency format.

### ADVANCED ELECTRONICS DESIGN, INC.

Booth 825

440 Potrero Ave.

Sunnyvale, California 94086-3632

(408) 733-3555

(800) 538-1730 (outside California)

Robert Deisher

Product Manager

AED will exhibit the COLORWARE product line of high-performance color graphics peripherals. For the OEM and end-user, AED provides unparalleled price/performance for the demanding requirements of the scientific, engineering and imaging communities. AED will present cost-

## EXHIBITORS

effective alternatives for those applications currently utilizing the MicroVAX II from Digital Equipment.

### ADVANCED MICRO DEVICES

Booth 1849

901 Thompson Place  
Sunnyvale, California 94088  
(408) 982-7433  
Michael Krell

Senior Strategic Marketing Engineer

Advanced Micro Devices designs, manufactures and markets integrated circuits for computation, telecommunication and instrumentation equipment in commercial and military applications. Its products include microprocessor, peripheral, logic, analog and memory circuits utilizing both bipolar and CMOS technologies. AMD is one of the 10 largest IC manufacturers in the world.

### ADVANCED TECHNOLOGY CENTER

Booth 954

5711 Slauson Ave., Suite 238  
Culver City, California 90230  
(213) 568-9119  
Frank J. Braunlich  
Marketing Manager

User Group Contact: Shyam Mittur  
GKS Product Manager

ATC is a developer of graphics, image processing and terminal emulation software. ATC products include: GRAFPAK-GKS, a full implementation of the ANSI/ISO GKS standard; SOFTERM, a line of terminal emulators for IBM PCs and compatibles; P-CUBED, an image processing and applications development package; and PlotIT, a GKS-based graphics and statistics package.

## EXHIBITORS

### AESTHEDES, INC.

Booth 472

21515 Hawthorne Blvd., Suite 360

Torrance, California 90503

(213) 540-5451

Dominique Claessens

President

AesthedeS will exhibit the first system in the world for aesthetic design. It meets the strictest requirements of aesthetics, ergonomics and economy. The system is extremely user friendly, has real-time feedback and is highly efficient. It is the perfect tool for a designer, with output up to 64,000 x 64,000.

### ALIAS RESEARCH INC.

Booth 1809

111 Queen St., E. #500

Toronto, Ontario, Canada M5C 1S2

(416) 362-9181

Martha A. MacDonald

Marketing Communications

User Group Contact: Art Bell

Vice President of Marketing

The ALIAS/1 3-D graphic design system gives you the power to use computer generated imagery to simulate real world objects, scenes and events and is a standalone turn key workstation that delivers computerized graphic design in real-time. The ALIAS/1 puts extensive computing power into the hands of designers in film and video production, slidemaking, electronic print and industrial design environments.

### AMAP/CIRAD

Booth 1817

42, rue Scheffer

75116 Paris, France

(1) 47.04.32.15

Alain Weil

Director of Industrial Liaison

## EXHIBITORS

The Plant Architecture Modelling Workshop (AMAP) consists of a team of botanists, agronomists, mathematicians and computer scientists from six of the most prestigious French research bodies. The workshop is for industrialization of the proposed product and features plant calculation software that allows the user to choose such parameters as variety, age, season and wind density. The workshop is associated with one of the most important European software firms, featuring reliability and optimization of the program, simplification of input, adaptation to the user's specific computer graphic system and technical assistance and maintenance.

### AMCAD CORPORATION

Booth 2034

1325 Whitlock, Suite 314

Carrollton, Texas 75006

(214) 323-0700

Wade Whitmer

Owner

AMCAD distributes to computer stores, systems houses and VARS, components of microcad systems such as plotters and plotter supplies, digitizing tablets, graphic cards, monitors and related software.

### AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Booth 134

1333 H St., N.W.

Washington, District of Columbia 20005

(202) 326-6400

Grayce A. Finger

*SCIENCE* Exhibits Manager

On display will be *SCIENCE* (weekly publication of the AAS) and other scientific publications.

## EXHIBITORS

### AMERICAN SMALL BUSINESS COMPUTERS, INC.

Booth 1090

118 S. Mill St.

Pryor, Oklahoma 74361

(918) 825-4844

Robert Webster

Vice President

American Small Business Computers will display ProDesign II, a CAD System for PC compatibles. ProDesign II provides full CAD features and supports over 150 different printers and plotters.

### AMF LOGIC SCIENCES

Booth 625

10808 Fallstone

Houston, Texas 77099

(713) 879-0536

Gabrielle C. Ryan

Vice President, Marketing & Sales

AMF Logic Sciences, Inc, a manufacturer of graphic processors and film recorders, will exhibit PC compatible products and main frame VRC's. The Turbograph 300 IBM PC board, a standalone that generates rasters displayable on thermal, ink-jet and impact printer/plotters will be shown. The Turbograph 700 for CAD/CAM applications, page, or continuous plot will be on display. The Turbograph 2100 slide recorder that produces 35mm slides or prints at 2048 DPI will also be shown.

### AMPEX CORPORATION

Booth 1845

401 Broadway

Redwood City, California 94063

(415) 367-2011

Mike D'Amore

AVSD Worldwide Marketing Director

Ampex will feature creative graphics center demonstrating Ampex PictureMaker™, 3-D modeling, an animation system and an AVA-3 video art system.

## EXHIBITORS

### ANIMATIQUE COMPARETTI

Booth 1917

126, rue Legendre  
75017 Paris, France

(1) 42.29.23.69

Gilbert Comparetti  
Director

User Group Contact: Fedor Garic  
Sales Director

The Animatique System DAAO-2-D is the first professional computer graphics animation tool designed for cartoon production. It features quality that is cost effective.

### APOLLO COMPUTER INC.

Booth 1709

330 Billerica Road  
Chelmsford, Massachusetts 01824  
(617) 256-6600 ext. 4889

Marketing Communications Department

User Group Contact: Andrea Woloski  
Senior Marketing Communications Specialist  
(617) 256-6600, ext. 4448

Apollo will demonstrate its new generation of DOMAIN workstations and DOMAIN Graphics Resources, the most comprehensive toolkit available for applications developers. Highlighted will be the industry's price/performance leader for low-end color graphics, the Series 3000 Personal Workstation, with real-time 3-D color graphics, and the DN580, that implements the emerging PHIGS standard in hardware.

### ARTRONICS

Booth 1705

300 Corporate Court, P.O. Box 408  
South Plainfield, New Jersey 07080  
(201) 756-6868  
(800) 527-8766 except New Jersey, Hawaii,  
Arkansas  
Peter Sauerbrey  
Marketing Services Director

## EXHIBITORS

Presentation Graphics Producer/PGP™ is a new high-resolution presentation graphics system offering compatibility with popular spreadsheet and pagination programs (ASCII input) and type-setters (1280 x 1280 (em) square resolution), vector-paint Merge™, and templates. Options: AniMagic™ real-time animation, vector draw, eight- and 24-bitplane paint; Image-Grabber™. Video Graphics System/VGS™ system is a broadcast-quality foundation system which can be configured in one or more of three ways: eight-bitplane paint with animation, 24-bitplane paint with flash-grab and 3-D animation. Each configuration can be upgraded.

### ASSOCIATION FOR COMPUTING MACHINERY

Located in Entrance Corridor

11 W. 42nd St.

New York, New York 10036

(212) 869-7440

Lillian Israel

Membership Promotion Manager

Association for Computing Machinery (ACM) will be displaying its major journals, special interest group (SIG) newsletters and conference proceedings. SIGGRAPH newsletters and past conference proceedings will be featured in addition to a computer graphics slide show. Anyone wishing to join ACM SIGGRAPH (or any other SIG), may do so at the membership booth in the main corridor adjacent to the registration area.

### AST RESEARCH, INC.

Booth 138

2121 Alton Ave.

Irvine, California 92714

(714) 863-1333

Chuck Cortright

Director of Advanced Systems

AST Research will feature the new AST TurboLaser, a cost-effective, complete desktop laser printer solution providing high-speed, letter-quality printing, full-page 300 DPI graphics and

## EXHIBITORS

compatibility with virtually all PC-based application software — including word processing, spread sheets, database management, business graphics and CAD/CAM graphics. And because AST TurboLaser is both LL and HPGL compatible, it's perfect for all business and CAD/CAM graphics packages for the PC and for the mainframe.

### AT&T, ELECTRONIC PHOTOGRAPHY AND IMAGING CENTER (EPICENTER)

Booth 468

2002 Wellesley Blvd.  
Indianapolis, Indiana 46219  
(317) 352-6141  
Steven G. Kukla  
Sales & Marketing

AT&T's EPICenter will be demonstrating its Truevision™ line of microcomputer graphics products. Our graphics boards and software enable AT&T and compatible personal computers such as IBM PC XT and AT to capture, create, store, display, manipulate and transmit television-quality images. A new hardware product will also be announced and demonstrated. These products have broad appeal in applications such as: design and presentation graphics, image database management, image processing/machine vision, video production, and teleconferencing.

### AUTODESK, INC.

Booth 128

2320 Marinship Way  
Sausalito, California 94965  
(415) 332-2344  
Sandra Boulton  
Marketing Director

AutoCAD, with over 50,000 installations worldwide, is high-performance drafting and design software that runs on any industry-standard microcomputer. With features previously found only in more expensive mini-computer and mainframe systems, AutoCAD ensures powerful CAD benefits for even the smallest drawing office.

## EXHIBITORS

### AVAX INC.

Booth 1555

c/o Crane Associates, Inc.  
3928 S. Sepulveda Blvd., Suite 12  
Culver City, California 90230  
(213) 390-9840  
Masao Arai  
Marketing Manager

AVAX Inc. is a manufacturer of computer animation systems. Its features include CD-ROM graphic library, digital synthesizer, human interface and low-cost video input unit. The 510 Model, called "510," has a broad application, such as broadcasting, promotion, company presentation, education and designing.

### AV VIDEO/MONTAGE PUBLISHING

Booth 952

25550 Hawthorne Blvd., Suite 314  
Torrance, California 90505  
(213) 373-9993  
Sam Stalos  
Editor

AV Video is a tutorial magazine for users of computer graphics, video, multi-image, interactive and audio that addresses the latest in technology and technique.

### AZTEK, INC.

Booth 1064

17 Thomas  
Irvine, California 92718  
(714) 770-8406  
Phillips M. Lippincott  
President

AZTEK 1986 provides all aspects of professional visual communications technology with a totally compatible family of products. The StudioSystem™ is a versatile, full function graphics system for the creation of print, film and video art. Filmstation 4000™ is a bulk load recording system for professional production and low-cost film recording.

## EXHIBITORS

### **BARCO-INDUSTRIES, INC.**

Booth 1956

170 Knowles Drive, Suite 212

Los Gatos, California 95030

(408) 370-3721

Barry Turner

Product Manager

Barco is showing for the first time its complete line of 19" electronic imaging video displays covering scanning ranges from 15KHz through 75KHz.

Units have advance style cabinets, including tilt and swivel capabilities. These units meet the high standards of performance and construction necessary for the stringent requirements of electronic imaging.

### **BNW, INC.**

Booth 1638

17419 Farley Road

Los Gatos, California 95030

(408) 395-7171

Robert E. Krieger

Vice President, Marketing & Sales

User Group Contact: Victoria M. De La Cruz  
Administrative Coordinator

BNW, Inc. will exhibit high-resolution color graphics controllers for the PC CAD and imaging markets. The Model 10 will display at 1280 x 1024 with a full 2K x 2K of image memory fully utilizing hardware pan and zoom. Sixteen colors are displayable from a palette of 4096 colors. Full support is available for all the popular Micro CAD systems. The Model 5 board set includes a display of 512 x 512 x 16 bits with a palette of 24 bits, 64,000 colors selectable out of 16.7 M. The capture board is an independent entity that will capture in real time 640 x 480 x 16 bits with full NTSB or RGB in and out.

## EXHIBITORS

### ROBERT BOSCH CORPORATION

Booth 1645

P.O. Box 30816

Salt Lake City, Utah 84119

(801) 972-8000

Al Jensen

Marketing Communications Manager

User Group Contact: Susan Crouse-Kemp

Graphics Specialist

Robert Bosch Corporation will be showing the FGS-4000 graphics animation and paint system. In addition, Bosch will show the 3-D Illustrator, a sophisticated paint system with full 3-D capabilities. A new product introduced at SIGGRAPH will be the Graphic Off-Line Modeler, a remote workstation capable of enhanced "off-line" object modeling.

### CAHNERS PUBLISHING COMPANY

Booth 942

275 Washington St.

Newton, Massachusetts 02158

(617) 964-3030

Corie Rand

Promotion Coordinator/EDN

Cahners Publishing Co. is a publisher of specialized business publications in building & construction, electronics & computers, foodservice, manufacturing and medical/health care. *EDN* is written for design engineers and engineering managers working in the electronics OEM. *EDN* covers new advances in electronic technology that help readers utilize those advances in their design. *Electronic Business* is written for the management team in electronics, computer and systems companies. *Mini-Micro Systems* is a magazine for computer systems integration. Readers include OEMs, value-added resellers and high volume users.

## EXHIBITORS

### CAPTION

Booth 1815

24, rue de Bignon — Z.I. Sud Est  
35100 Rennes, France

CAPTION, a subsidiary of TELMAT, features a synthetic image production system.

### CELCO

Booth 442

1150 E. 8th St.  
Upland, California 91786  
(714) 985-9868  
Peter M. Constantine  
Sales Manager

User Group Contact: Peter M. Constantine  
Sales Manager

CELCO will be exhibiting its complete line of 8000-line addressable film recording systems, including the pace setting industry standard CELCO 8000 and CELCO 5000 models, plus the all new CELCO "Junior" and the CELCO "Micro" series.

### CH PRODUCTS

Booth 1690

1225 Stone Drive  
San Marcos, California 92069  
(619) 744-8546  
Dan Hayes  
Vice President

CH Products will display the Microstick, a professional point-and-select device designed for CAD/CAM, graphics and text editing applications that has output modes compatible with mice and digitizing pads. The company's line of precision analog and digital joysticks designed for panel mounting and suited for applications requiring X-Y-Z positioning control will also be displayed.

## EXHIBITORS

### CHYRON CORPORATION

Booth 1054

265 Spagnoli Road  
Melville, New York 11747  
(516) 249-3018

Lawrence Mincer  
Director of Sales & Marketing

CHYRON Corporation is a designer and manufacturer of high-performance electronic digital graphics equipment and systems worldwide for the TV broadcast and video production industries. CHYRON will be displaying at the SIGGRAPH show the high-resolution, low-cost Chameleon Paint system. It is a fully functional paint system that includes video genlocking and encoding.

### CMP PUBLICATIONS, INC.

Booth 1041

600 Community Drive  
Manhasset, New York 11030  
(516) 365-4600

Frank Nardi  
Manager, Trade Shows

*Computer Systems News* — the OEM computer newsweekly.

*Computer Retail News* — The weekly newspaper for systems and software retailing.

*VLSI Systems Design* — the magazine for systems design using VLSI technology.

### COLORGRAPHICS SYSTEMS, INC.

Booth 1456

5725 Tokay Blvd.  
Madison, Wisconsin 53719  
(608) 274-5786

Kenneth W. Simmons  
Vice President & General Manager

Color Graphics Systems, Inc. will be exhibiting its ARTSTAR 3-D that features full 3-D graphics and digital "Paint" in one 24 bit-per-pixel system. Also on exhibit will be the 3-D Animation Automation that features VTR machine control for fully

## EXHIBITORS

automatic animation control. The company makes available new vector type character generation that features more than 500 vector fonts and hard copy output at 4,000 lines horizontally. 3-D modeling includes: fully antialiased rendering, multiple light sources, synthetic camera moves, spline curve motions, extensive choreography controls, texture mapping, smooth shading, full color real-time frame grabs in NTSC or RGB rotoscope ultra high resolution.

### COMPUTER-AIDED ENGINEERING MAGAZINE

Booth 1651

1100 Superior Ave.  
Cleveland, Ohio 44114  
(216) 696-7000  
Bill Tucker  
Publisher

User Group Contact: Cindy Paskert  
Business Manager

*Computer-Aided Engineering Magazine* is a technical journal which features editorial and advertising directed to the professionals who specify and buy computer-based equipment for design and manufacturing applications.

### COMPUTER ASSISTED CARTOON/ CENTRE NATIONAL DU CINEMA

Booth 1916

3, rue de Monttessuy  
75007 Paris, France  
(1) 45.05.14.40  
M. Romand-Monnier

See listings for: GETRIS IMAGES, ANIMATIQUE  
COMPARETTI and DAIKIRI.

### COMPUTER GRAPHICS LABORATORIES, INC.

Booth 1246

405 Lexington Ave.  
New York, New York 10174  
(212) 557-5130  
Mark Miller  
Director of Media Services

## EXHIBITORS

*INSTAMATION* — Computer Graphics Lab, Inc. will exhibit its low-cost, real-time animation system.

*IMAGES II+* — Computer Graphics Lab, Inc. also makes available *ANIMATE!* animation software, *BIZVIZ* business graphics and *BIG N' FAST* with high-resolution rendering that can print industry device interfaces.

*TRILLIUM* — Computer Graphics Lab, Inc.'s high-performance, low-cost visual simulation system also will be shown.

### COMPUTER GRAPHICS TODAY

Booth 2038

50 W. 23rd St.

New York, New York 10010

(212) 645-1000

Mike Boyajian

Marketing Director

*Computer Graphics Today* is a monthly tabloid providing news and feature stories for computer graphics users and suppliers. Free sample copies and subscriptions are available.

### COMPUTER GRAPHICS WORLD

Booth 2026

119 Russell St.

Littleton, Massachusetts 01460

(617) 486-9501

Patricia McCauley

Marketing Coordinator

*COMPUTER GRAPHICS WORLD* is a trade publication serving the worldwide computer graphics industry. It comprehensively covers technology and application areas for computer graphics. Editorial includes application stories, new technologies, product announcements, interviews with computer graphics leaders and innovators, technology transfers, product evaluations, industry exhibition and conference reports.

## EXHIBITORS

### COMPUTER PICTURES MAGAZINE

Booth 2016

330 West 42nd St.  
New York, New York 10036  
(212) 947-0020  
2 Village Sq. W.  
Clifton, New Jersey 07011  
(201) 546-4600  
Dean Ross Eaker  
Publisher

User Group Contact: Richard McCarthy  
Marketing Director

*Computer Pictures Magazine* was developed to bridge the gap between the executive and the engineer. It covers significant software and hardware developments in the computer graphics field, with an emphasis on broadcast, television production and teleproduction, the new audio-visual and corporate graphics. It has a full four-color format and publishes six issues a year.

### COMPUTER SUPPORT CORPORATION

Booth 372

2215 Midway Road  
Carrollton, Texas 75006  
(214) 661-8960  
Charles H. Hinds  
Director, Corporate Development

Computer Support Corporation will demonstrate two presentation graphics software programs for microcomputers. PICTURE PERFECT is a data-driven program that simplifies the creation of pie, vertical bar, horizontal bar, line and combined bar/line charts. DIAGRAPH contains over 2200 symbols that can be manipulated, connected with free-form lines and combined with 13 text types to create professional-looking presentation aids.

## EXHIBITORS

### CRAY RESEARCH, INC.

Booth 635

1333 Northland Drive

Mendota Heights, Minnesota 55120

(612) 681-3651

William Samayoa

Senior Graphics Analyst

Cray Research, Inc. designs, manufactures, markets and supports large-scale, high-performance computers used by industry and government for scientific and engineering processing and simulation. CRAY X/MP and CRAY-2 supercomputers are installed worldwide and used for such diverse applications as weather forecasting, structural analysis, nuclear safety, basic research, oil reservoir modeling, seismic processing and computer graphics.

### CROSFIELD, INC., DESIGN SYSTEMS

Booth 459

5 Harris Town Road

Glen Rock, New Jersey 07452

(201) 447-5800

Joe Wielock

Vice President

The Aesthedes System and Crosfield's Pro-Edit-Visualiser are graphic workstations produced for the designer, and address the graphic arts and publishing industries. Packaging line art is outputted to an accuracy of fifty dots per millimeter. Page composition, text and photography, planned up to 20' by 24', have direct interface to production. Crosfield's experience in pre-press image manipulation has led to the development of its new division Design Systems, and the introduction of advance graphic studio technology.

## EXHIBITORS

### CSPI

Booth 1949

40 Linnell Circle

Billerica, Massachusetts 01821

(617) 272-6020

Phil Blake

Marcom Manager

User Group Contact: Chris Ware

Sales Administration/Technical

CSPI will be showing its Mini-map™ array processors for image processing applications. Features include: up to 28 mflops of processing power; up to 16 mbytes of data memory; direct digital I/O for real-time processing; FORTRAN compiler; and image processing software library. All programs are available in packaged systems or OEM board sets.

### CUBICOMP CORPORATION

Booth 450

21325 Cabot Blvd.

Hayward, California 94545

(714) 630-9253

Carol Byram

Marketing Operations Manager

User Group Contact: Ken Creasman

Owner/Yale Video

Cubicom will demonstrate the latest version of the Picturemaker™ System, incorporating new rendering, paint and animation capabilities. Picturemaker™ is a high-performance video animation system that generates professional quality 3-D images on an IBM Personal Computer. The system allows the creation of solid models of virtually any shape, using more than 65,000 colors as well as 3-D titles, logos and computer generated story boards.

## EXHIBITORS

### DAIKIN INDUSTRIES, LTD.

Booth 1059

225 North Michigan Ave., Suite 2322

Chicago, Illinois 60601-5983

(312) 938-8887

Kazuhiko Saito

Branch Manager

Daikin Industries will demonstrate complex 3-D design and simulation using the local 3-D intelligent function of the COMTEC DS351BU display and its computer graphics software packages. The COMTEC DS351BU incorporates advanced features such as a high-speed polygon fill, 3-D S.R.T., transparent display, smooth color shading, depth cueing, simultaneous display of 4,096 colors and more.

### DAIKIRI

Booth 1916

71, Faubourg St. Antoine

75011 Paris, France

(1) 43.43.51.06

Jean-Claude Moissinac

President

DAIKIRI provides software research, development and image production for cartoon animation. Featured will be the best "cocktail": world renowned animation artist Jacques Rouxel (Les Shadoks) and the computer graphics engineer Jean-Claude Moissinac.

### DALIM

Booth 1920

4, rue Philidor

75020 Paris, France

(1) 43.72.68.92

Jean-Alain Ducros

The French/German company DALIM, based in Paris, Strasbourg, and Willstätt (Germany), over the past four years has developed a unique design station producing very high resolution images for military, industrial, scientific and communications

## EXHIBITORS

applications. The software on a vector basis allows manipulation of groups and classes as do other top-of-the-line systems, but it also includes such unique functions as segment/group deformation on any surface, 2-D as well as 3-D.

### DALLAS DIGITAL CORPORATION

Booth 1190

1825 E. Plano Parkway, Suite 160

Plano, Texas 75074

(214) 424-2800

Pamela Montgomery

Sales Support

Dallas Digital Corporation is the authorized Fujitsu distributor in Texas, Oklahoma and Kansas for disk drives, tape units and printers. DDC also provides authorized factory warranty repair services for the Fujitsu products. With a fully stocked Fujitsu inventory, DDC is positioned to quickly respond to customer requirements from pre- through post-sale activities including JIT manufacturing requirements.

### DATA TRANSLATION, INC.

Booth 1066

100 Locke Drive

Marlboro, Massachusetts 01752

(617) 481-3700

Johanne Tule

Marketing Communications Manager

Data Translation will be exhibiting image processing hardware and software for the IBM Personal Computer, the MicroVAX II and VMEbus systems.

### DECISION IMAGES, INC.

Booth 1490

1000 Herrontown Road

Princeton, New Jersey 08540

(609) 683-0234

Bob Mills

President

## EXHIBITORS

Decision Images will demonstrate ReSource, a new family of software for PC graphics and image processing. ReSource and a Number Nine card let users select functions, manipulate hue/intensity and place text with one-handed control; use sophisticated vector or line graphics with images; and build on included source code.

### DEC PROFESSIONAL

Booth 1590

921 Bethlehem Pike

Spring House, Pennsylvania 19477

(215) 542-7008

Cathy Dodies

Assistant to Publishers

User Group Contact: Cathy Dodies

*DEC Professional* magazine is a monthly journal aimed at buyers and users of DEC's products and related services. It focuses on DEC operating systems, hardware, software and languages. *VAX Professional* contains high-quality, technical articles. *DEC PRO EXTRAS* — OEM/VAR Edition and UNIX Edition — are published for OEM/VARs and users running UNIX.

### DICOMED CORPORATION

Booth 219

12000 Portland Ave., P.O. Box 246

Minneapolis, Minnesota 55440-0246

(612) 885-3000

Kathy Blake

Manager, Marketing Communications

User Group Contact: Peni Wilson

Director, Customer Relations

DICOMED Corp. manufactures a complete line of computer graphics products in the industry. The DICOMED Product System ranges from PC-based software to the world's most advanced design station, the IMAGINATOR. For output DICOMED offers the highest quality film recording systems for presentation and/or precision graphics applications.

## EXHIBITORS

### DIGITAL ARTS COMPANY

Booth 347

7370-Q Opportunity Road  
San Diego, California 92111-225  
(619) 541-2055

Sheldon Liebman

Vice President, Sales & Marketing

Digital Arts Company will introduce an advanced PC-based 3-D computer animation system. Key features include: fractal landscapes, reflection and texture mapping, multiple simultaneous object movement, multiple light sources with varying color and intensity, and animation of all object features including transparency and color.

### DIGITAL EQUIPMENT CORPORATION

Booth 419

146 Main St.  
Maynard, Massachusetts 01754  
(617) 493-7440

Kevin W. Hughes

Marketing Communications

Digital Equipment Corporation displays a variety of third party applications on their latest high performance graphics workstations and their full line of graphics terminals and hardcopy devices. Digital also will demonstrate the ability to network workstations to other workstations or VAXes in a mixed UNIX or VMS environment.

### DIVERSIFIED TECHNOLOGY, INC.

Booth 1925

8585 Stemmons, Suite 103N  
Dallas, Texas 75247  
(214) 631-2235

H. Glyen Lemmon

The Colorcatcher, a product for color video comprehension, allows a typical 20:1 reduction in data. Compatible with NTSC Video, the Colorcatcher digitizes an image into 768 x 488 pixel array using a palette of 16 million colors. Controlled by an IBM Personal Computer, the Color-

## EXHIBITORS

catcher may be customized by an OEM, VAR, or systems integrator. Applications include: video teleconferencing, medical and law enforcement image archiving, electronic publishing, interactive video training and education, video production, broadcasting and more.

### **DUBNER COMPUTER SYSTEMS, INC.**

Booth 1617

6 Forest Ave.

Paramus, New Jersey 07652

(201) 845-8900

Alan Schoenberg

Director of Marketing

User Group Contact: Keith Thomson

Software Engineer

Dubner Computer Systems is exhibiting their 20K real-time character generator featuring 16 million colors, linear keying, anti-aliased fonts, and multiple effects including playback capability of advanced CBG or TEXTA animations and graphics. The newest family member on display is the Dubner Painter/DPS-1, a true full-color NTSC video frame grabber/painting system.

### **DUNN INSTRUMENTS**

Booth 425

544 Second St., P.O. Box 77172

San Francisco, California 94107

(415) 957-1600

Page Milliken

Mike Cassidy

Dunn Instruments, a leader in imaging technology, manufactures film recorders for high quality output on most color film. Dunn's products on display include the 64KHz Multicolor for the latest graphics workstations, their 8K x 8K digital recorder, the compactcolor with CINE capability and the Dunncolor Macintosh.

## EXHIBITORS

### DYNAIR ELECTRONICS, INC.

Booth 1423

5275 Market St.

San Diego, California 92114

(619) 263-7711

Thomas R. Meyer

Product Manager

DYNAIR Electronics, Inc., a San Diego based manufacturer of high resolution RGB graphics switching (multiplexing) and distribution equipment, introduces new Advanced Technology Video equipment for signals requiring over 100 MHz bandwidth, such as the 1280/1024, 60 Hz, non-interlaced format, with cable compensation available to locate displays up to 1,000 ft. away.

### EASTMAN KODAK COMPANY

Booth 1447

343 State St.

Rochester, New York 14650

(716) 724-4765

Addison T. Steven

Audiovisual Marketing Specialist

Eastman Kodak will exhibit the new liquid crystal display (LCD) projection device for largescreen presentations of charts, graphs or other data directly from an IBM PC and most PC compatibles. Presentation can be controled from PC keyboard or with a multi-function, wireless infrared remote control.

### EIKONIX CORPORATION

Booth 1450

23 Crosby Drive

Bedford, Massachusetts 01730

(617) 275-5070

Stephen J. Emery

Marketing Manager

EIKONIX Corporation, a Kodak Company, will demonstrate several new enhancements to its family of high performance digital imaging camera systems, including newly developed interfaces to

## EXHIBITORS

Autodesk's® AutoCAD® Drafting System and IBM PCs. EIKONIX camera systems are typically used in applications requiring high-resolution, high-speed acquisition of stationary pictures and objects, including CAD/CAM, mapping, medical imaging, artificial intelligence, remote sensing, earth resource analysis, animation and graphic arts.

### ELECTROHOME LIMITED

Booth 1632

809 Wellington St. N.

Kitchener, Ontario, Canada N2G 4J6

(519) 744-7111

Rick Norris, Sales Manager

Bruce Brown, Sales Manager

Electrohome will exhibit a high resolution color graphics monitor that interfaces automatically with any color card from 15-34 KHz, as well as color and monochrome large screen data/graphics projection systems and the first CAD/CAM color projector. The ECP CAD/CAM automatically interfaces with systems from 30-71 KHz.

### ELECTRONIC NEWS

Booth 947

7 E. 12th Street St.

New York, New York 10003

(212) 741-4372

Beth Stein

Marketing Services Manager

*Electronic News* delivers business news for the electronics and computer industries, with weekly sections on computers-systems, peripherals, software & services, communications/data networking; design, test & measurement; materials/packaging/production; components; government electronics; distribution & purchasing and financial events. Special newsprint features, lift-out sections and spotlights run throughout the year analyzing various market segments and industry trends.

## EXHIBITORS

### ELOGRAPHICS, INC.

Booth 1146

105 Randolph Road  
Oak Ridge, Tennessee 37830  
(615) 482-4100

Michael C. Higginbotham  
Sales Engineer

User Group Contact: Michael C. Higginbotham

Elographics features the following:

E274 & E270 and Touch Screen — Allows operator to easily interact with computer system by simply touching the display screen.

E232 Cursor Control Pad — Operator moves cursor on display by simply touching pad's surface and moving finger.

E233 Graphics Tablet — Low cost digitizing tablet is activated by ball point pen or stylus.

### EQUITABLE LIFE LEASING CORPORATION

Booth 891

10251 Vista Sorrento Parkway, Suite 300  
San Diego, California 92121  
(619) 458-4400

William C. Taylor  
Executive Vice President, Marketing

Equitable Life provides leasing/financing services for a wide variety of technological and service related equipment, including CAD/CAM equipment, computers and computer peripherals. Products offered: operating leases, tax-priced leases and national vendor programs.

### EVANS & SUTHERLAND

Booth 1428

580 Arapeen Drive  
Salt Lake City, Utah 84108  
(801) 582-5847

Dave Luther  
Director of Sales & Marketing

User Group Contact: Neil Harrington  
Manager, Product Support & Education

## EXHIBITORS

Evans & Sutherland features real-time dynamic 3-D molecular modeling and engineering design applications featuring the Evans & Sutherland PS 340 and PS 350 Computer Graphic systems.

System features include 3-D perspective and depth-cueing, viewporting and six-plane clipping standard. A distributed graphics architecture allows graphics manipulations to be performed in the user station, freeing the host to run applications programs almost uninterrupted. Interfaces include RS 232, Ethernet, VAX Parallel, and IBM 2358 and 5088.

### EXECUCOM SYSTEMS CORPORATION

Booth 850

9442 Capital of Texas Highway

N. Aboretum Plaza One

Austin, Texas 78759

(512) 346-4980

David Clark

Director, Marketing Relations

Execucom will feature Impressionist, a corporate standard for business graphics. This unique system meets the needs of all business users: beginners, experts, application builders and graphic artists. And it runs on micros, minis, and mainframes. Standardize on one easy-to-use, full function system for everyone: beginners to experts, micros to mainframes.

### FALL JOINT COMPUTER CONFERENCE

Booth 1454

1730 Massachusetts Ave., NW

Washington, District of Columbia 20036-1903

(301) 530-1559

Stanley Winkler

Conference Chair

Nine Conferences in one: Electronic Education, Software Systems, Artificial Intelligence, Supercomputing, Algorithms, Modeling and Measurement, Computer Design, International Developments, Operating System and Databases ...

## EXHIBITORS

integrated into the ACM and IEEE Computer Society Annual Conferences. Experience the cross pollination of ideas at the new INFOMART showcase, November 2-6, 1986 in Dallas, Texas.

### FLAMINGO GRAPHICS

Booth 156

222 Alewife Brook Parkway  
Cambridge, Massachusetts 02138  
(617) 868-1111

Scott Bennett

Director of Engineering

Flamingo Graphics specializes in supplying digital typefaces to the raster graphics industry.

Flamingo will feature its anti-aliasing software, producing gray-scaled character bitmaps for higher quality text display. Mathematical outlines are filtered to meet the specific needs of different graphics display devices, creating fonts best suited to your environment.

### FLOATING POINT SYSTEMS, INC.

Booth 1654

3601 S. W. Murray Blvd.  
Beaverton, Oregon 97005  
(503) 641-3151

Gayle Furlow

Exhibits Manager

Jack Lee

Product Specialist

User Group Contact: Gayle Furlow

Array Coordinator

High performance computing from the 54 MFLOPS MP32 to the 262 GFLOPS T Series provides a wide range of solutions for graphics and imaging applications. Price/performance from FPS allows users to implement difficult graphics and imaging tasks with greater ease and less expense. Live graphics demonstrations will be given with an FPS-5420, Bear Systems Koala Display System and Micro-VAX II.

## EXHIBITORS

### FLYING MOOSE SYSTEMS AND GRAPHICS, LTD.

Booth 846

The Clinton House  
Ithaca, New York 14850  
(607) 273-3690  
Carl Bass

Vice President Research

Flying Moose produces HOOPS, a device-independent 3-D graphics package. HOOPS features hierarchical segment structure, hidden line and surface removal and shaded image rendering. Clean design and pure object-oriented architecture make HOOPS flexible, powerful and easy to use. HOOPS is designed for scientific, engineering and CAD/CAM applications.

### FOCUS GRAPHICS, INC.

Booth 1067

10 Twin Dolphin Drive, #R 303  
Redwood City, California 94065  
(415) 595-6920  
Judy Nash

Customer Support Manager

User Group Contact: Judy Nash

Focus Graphics is introducing the IMAGE-CORDER 4500 series of display driven computer image film recorders designed to offer a resolution of 1280 x 1024, 60 Hz non-interlaced. The recorder is microprocessor controlled, and has camera back options for 35 mm, 4 x 5 prints, 8 x 10 prints and Polaroid Autofilm. It is designed to interface with high-end CAD/CAM and image processing systems.

### FRENCH EXPOSITIONS IN THE U.S., INC.

Booth 1822

40 W. 57th St., Suite 2100  
New York, New York 10019  
(212) 265-5676

Elizabeth Wolf and Cécile Fabris

French Collective Exhibit — See individual company listings.

## EXHIBITORS

### GENERAL ELECTRIC COMPANY, PDPO

Booth 454

Electronics Park, Bldg. 6-214

Syracuse, New York 13221

(315) 456-3304

Maureen T. Hanson

General Electric will show its new, high resolution Multiple Light Valve Projector with approximately 70 percent more brightness than the brightest Talaria™ single light valve projector. The MLV also features enhanced contrast and resolution. Also shown will be the standard Talaria projector line with brightness up to 2,000 lumens, variable throw distance and easy focusing.

### GENERAL ELECTRIC — SILICON SYSTEMS TECHNOLOGY DEPARTMENT

Booth 1039

One Micron Drive

Research Triangle Park, North Carolina 27709

(919) 549-3621

Kathy Holoman

Program Manager, Marketing Communications

General Electric will exhibit the Graphicon™ 700 Graphics Processor. The Graphicon™ 700 is a high-resolution, high-performance 3-D display processor for interactive computer graphics applications.

### GENERAL PARAMETRICS CORPORATION

Booth 1828

1250 Ninth St.

Berkeley, California 94710

(415) 524-3950

Sanne Carroll

Corporate Communications Manager

General Parametrics displays the VideoShow family of presentation products. Featured are the VideoShow 160, which displays images in 1000 colors and resolution. Also displayed is PictureIt, software for the creation of images; PrintMaker for color and black

## EXHIBITORS

and white hardcopy and transparencies; and PhotoMaker for 2000 x 1000 line high-resolution slides. The VideoShow library of independent software is also demonstrated.

### GENIGRAPHICS CORPORATION

Booth 1069

4806 W. Taft Road  
Liverpool, New York 13088  
Diane R. Grasso  
Program Administrator, Special Events

Genigraphics exhibits Masterpiece 8770, advanced imaging system with 8000 line resolution. Images are generated on color or black and white 35mm, 46mm, 4" x 5", 7" x 9" (nominal) and 8" x 10" film. Graftime advanced graphics software features a preformatted business graphics package for the IBM PC XT and AT computers and 100 percent compatibles. Exhibits include Genigraphics Laser Printer, Paint/Frame Grab and Video modules.

### GEOSCAN, INC.

Booth 2007

12306 E. 60th St.  
Tulsa, Oklahoma 74146  
(918) 252-3608  
Greg Warren  
Vice President

Although young, Geoscan has broad experience including seismic data processing, finite element modeling and array processor software optimization development. Geoscan's plot server, a flexible rasterization system, developed first for the seismic industry, is now generally available as a cost effective solution to high volume rasterization problems.

## EXHIBITORS

### GETRIS IMAGES

Booth 1919

Chemin des Prés — Zirst

38240 Meylan, France

(1) 76.80.19.58

Gérard Renault

Marketing and Sales Manager

Graphic Workstations: Realistic 2-D and 3-D graphics can be synthesized and animated on the Atalis and Getris workstations. Units are compatible with video standards, genlockable and can simultaneously display 16.7 million shades. High capacity memory frames of 1024 x 1024 x 12 bits allow for picture overlay, windowing, object priority, visibility and invisibility in real time. Image fill-in is at 13.5 million pixels per second. Picture frames taken with a video camera can be stored, retouched and modified. Powerful software allows air-brushing, fade-outs, text overlay, etc. The workstation can be interfaced with the IBM PC AT and compatibles.

### GIGATEK LIMITED

Booth 1425

21 Progress Court, Unit #23

Scarborough, Ontario, Canada M1G 3V4

(800) 268-4924 In Canada (416) 439-4104

Jay Udow

Marketing Assistant

User Group Contact: Ken Nagpal

Manager, Customer Support

GIGATEK exhibits high-resolution color displays, including several new models. GIGATEK shows a 9" rugged display that meets military specifications as well as a 16" monitor. Displays handling horizontal scanning frequencies beyond 64KHz, and GIGALOK, a feature that allows GIGATEK monitors to change frequencies and lock automatically, will be demonstrated.

## EXHIBITORS

### GOULD IMAGING & GRAPHICS DIVISION

Booth 833

46360 Fremont Blvd.

Fremont, California 94538

(415) 498-3200

Pamela Cornelison

Director, Marketing Communications

User Group Contact: Clyde Spencer

Training Manager

Gould Imaging & Graphics Division manufactures advanced digital image processing and display systems worldwide. Gould image processors are used in remote sensing, medical/life science, printing/publishing and industrial automation applications. Gould image processors range from the economical FD5000 and top-of-the-line IP8000 for standard resolution processing to the newest high-resolution IP9000 introduced June 1986. Gould image processors interface with most popular mini/microcomputers.

### GRACE

Booth 1819

3 place Paul Verlaine

75013 Paris, France

(1) 45.65.12.22

L. Pham Van Cang

Research and Development Manager

GRACE was set up by UNTXSYS in November, 1985 to develop high-level graphics systems. Integration and manufacturing of the systems are handled by UNTXSYS in its own production unit located in Nimes, in the south of France. So far, GRACE has designed and developed GRASYS 1, a graphic processor developed around an IBM PC compatible under a standard environment (MS-DOS). As a result, GRASYS 1 offers the power of a top of the range system with the economy and convenience of a smaller computer.

## EXHIBITORS

### GRAFPOINT

Booth 1748

4340 Stevens Creek Blvd., Suite 280

San Jose, California 95129-1102

(408) 249-7951

Brad Sharp

Sales Manager

Grapoint will demonstrate its line of Tektronix emulation software for PC's: TGRAF for host-based graphics applications requiring terminal emulation; TNET for networking applications; and TPORT for running Tektronix-compatible software on your PC. New at the show: TGRAF-15, offering 4105/4107/4115 protocols with resolutions to 1280 x 1024.

### GRAFTEL, INC.

Booth 742

400 Executive Blvd.

Elmsford, New York 10523

(914) 592-3700 or (603) 526-4739

Jack Flynn

Vice President, Sales & Marketing

Graftel manufactures a series of video processors that provide hardware solutions to the problem of printing color hard copy from graphics displays. They acquire, store and output complete pages of color graphics. No software required. Screen size to 1280 x 1024, data rate to 125 MH<sub>2</sub>, buffering to two megabytes, eight or 64 colors.

### GRAPHIC COMPUTER SERVICE, INC.

Booth 2031

13240 Hempstead Road #222

Houston, Texas 77040

(713) 690-2744

David M. Nicol

President

## EXHIBITORS

### GRAPHIC CONTROLS

Booth 842

189 Van Rensselaer St., P.O. Box 1271

Buffalo, New York 14240

(716) 853-7500

Alfred F. Tymm

Marketing Communications Manager

Graphic Controls offers the computer graphics industry the most complete line of plotter supplies products. Available are: pen-plotter media, disposable plotter pens, points, inks, adapters and accessories. Also available are dielectric media and toners for electrostatic plotters.

### GRAPHIC RESOURCES CORPORATION/ GRAPHIC SYSTEMS DIVISION

Booth 1144

5462 Research Drive

Huntington Beach, California 92649

(714) 895-4811

Ronald G. Ball

Marketing Coordinator

Since 1971, Graphic Resources Corp. has provided customers with the option of selecting hardware from any one of the major manufacturers of plotters. This flexibility has enabled GRC to expand in multiple sale/service locations. GRC emphasizes cost effective equipment. Graphic Resources Supplies Division has the industry's largest array of plotting media, pens, ink and accessories developed and manufactured specifically for use on all pen and electrostatic plotters.

### GRAPHON CORPORATION

Booth 1656

1901 S. Bascom Ave.

Campbell, California 95008

(408) 371-8500

Mason Killebrew

Director of Marketing

## EXHIBITORS

GraphOn is exhibiting the GO-200 Family of composite Graphic and Alpha terminals. Perfect emulations of DEC VT 100/220, ReGIS and Tektronix 4010-4015 Terminals, 60 Hz non-interlaced video, fast communications and advanced capabilities such as True Pan, Zoom and Raster Operators are featured.

New — the GO-235.

### GTCO CORPORATION

Booth 122

7125 Riverwood Drive  
Columbia, Maryland 21046  
(301) 381-6688  
George Helser

Vice President, Sales and Marketing

GTCO will exhibit four lines of graphic input devices, including NOMAD™, a 3-D Image Mover for manipulating 3-D displays; Macintizer™, a MacIntosh Integrated Digitizer which plugs into the mouse port; Micro DIGI-PAD®, small digitizers for pointing and menuing; and DIGI-PAD®, large digitizers, 11"x11" to 42"x60", for a wide range of digitizing applications.

### KARL GUTMANN INCORPORATED

Booth 2009

605 Education Road  
Cornwall, Ontario, Canada K6H 5V6  
(613) 932-0108  
James F. Duck

Manager, Market Support Services

Gutmann is introducing new additions to its highly successful CAD-TECH furniture series. Featured will be the new 48 x 24 x 31¼/39¼" electric stand for dual monitors. The unit is mobile and has a safety switch that prevents inadvertent lowering of the table onto another surface. Also present is our new system cabinet that accommodates a wide variety of PC-based CAD systems including the popular AT.

## EXHIBITORS

### HEWLETT-PACKARD COMPANY

Booth 213

3404 E. Harmony Road  
Fort Collins, Colorado 80525  
(303) 229-2155  
Glenda McCall  
Product Marketing Engineer

Hewlett-Packard features a new graphics workstation that provides affordable computational power and high performance, high-resolution color graphics needed for interactive solids modeling. See an integrated solids modeling system based on this workstation. Also see solutions for business graphics, desktop publishing, PC CAD, printers and plotters.

### HITACHI AMERICA, LTD.

Booth 463

50 Prospect Ave.  
Tarrytown, New York 10591-4698  
(914) 332-5800  
Trish Storms  
Public Relations Specialist

Hitachi will display a full range of color monitors including a new 19", 1600 x 1280 pixel, and new 15" and 25" models, both 1280 x 1024 pixel. Also, a variety of digitizer tablets including the new Tiger Tablet II PLUS an updated version of this tablet with CMOS and lower power consumption.

Hitachi also will display GM-1000, software that turns an inexpensive IBM PC XT or PC AT personal computer into a full-blown CAD system.

### HI-TECH MARKETING CORPORATION

Booth 1475

5448 Hoffner Ave., Suite 208  
Orlando, Florida 32812-2501  
(305) 277-8686  
Eric V. Gruber  
Director of Communications

Hi-Tech Marketing Corporation delivers the affordable computer image generation system, the Black Box series — the solution without compro-

## EXHIBITORS

mise. Features include hidden surface removal, full clipping and a real-time (30hz) update rate. Experience the smoothness of simulated flight — take control — fly Black Box II at the HTM exhibit.

### HOST CONTROL TECHNOLOGIES

Booth 946

P.O. Box 515528

Dallas, TX 75251

(214) 458-4299

M. T. Dunton

Vice President of Marketing

### HOUSTON INSTRUMENT A DIVISION OF AMETEK

Booth 1017

8500 Cameron Road

Austin, Texas 78753

(512) 835-0900

Kevin Pflaum

Trade Show Manager

Houston Instrument will demonstrate the new A to E size DMP-56 professional drafting plotter. The DMP-56 will handle 18 different media sizes ranging from 8.5" x 11" to 36" x 48" and features a resolution of .001" and a maximum plotting speed of 17 inches-per-second. Houston Instrument also will show several of the TRUE GRID™ Series Digitizers, its A and B size four-pen PC Plotter and eight-pen DMP-29, the C and D size DMP-52, and 14-pen DMP-52MP.

### HUMAN DESIGNED SYSTEMS, INC.

Booth 775

3440 Market St.

Philadelphia, Pennsylvania 19104

(215) 382-5000

Michael G. Kantrowitz

Director of Marketing

Human Designed Systems will demonstrate the innovative new family of DEC and Tektronix compatible terminals — the HDS2000 series. These

## EXHIBITORS

terminals offer high resolution, fast drawing speeds and a wide range of capabilities for both graphics and alphanumeric applications, using a high quality, high contrast 15-inch monitor for exceptionally clear display.

### IEEE COMPUTER SOCIETY

Booth 847

10662 Los Vaqueros Circle

Los Alamitos, California 90720-2578

(714) 821-8380

Carole Porter

Advertising Coordinator

IEEE Computer Society will be providing membership information, displaying computer graphics tutorial and proceedings text and distributing copies of *Computer Graphics and Applications* magazine. *Computer Graphics and Applications* is published for the computer graphics professional treating topics such as standards, languages, algorithm design, workstations, graphic systems and display technology.

### IKEGAMI ELECTRONICS (USA), INC.

Booth 1256

37 Brook Ave.

Maywood, New Jersey 07607

(201) 368-9171

Robert Estony

Communications Manager

User Group Contact: Richard Spallone

National Sales Manager for Display Monitor Division

Ikegami, manufacturer of high-quality raster scan graphic display monitors, exhibits their complete line of color and monochrome display monitors and standard switching power supplies. The exhibit includes a new, unique and futuristic enclosure, offering an opportunity to combine quality monitors with quality ergonomic design; a

## EXHIBITORS

compact, lightweight system with small footprint. Discuss your future with Ikegami for a high-resolution monitor package.

### IMAGEN CORPORATION

Booth 245

2650 San Tomas Expressway  
Santa Clara, California 95052  
(408) 986-9400  
Kim Tackwell  
Trade Show Coordinator

IMAGEN will be introducing the new ImageServer XP series of laser printing systems. The top of the line 7320, shown here for the first time, features automatic duplexing at 20 pages-per-minute and is perfect for high-performance document processing and CAE applications. The new ImageServer XP 3320, 4324 and 2308 also will be shown.

### IMAGING TECHNOLOGY INC.

Booth 1628

600 West Cummings Park  
Woburn, Massachusetts 01801  
(617) 938-8444  
Robert Rudolph  
Trade Show Manager

Imaging Technology Inc. is a supplier of plug-compatible, real-time image processing modules and subsystems used by OEMs and end-users. Their products are used by Fortune 500 companies, leading research and development centers, universities and systems integrators, in both end-user and OEM applications. Applications for Imaging Technology's products include: inspection, robotic vision, medical imaging, microscopy, thermal imaging, motion, low-light and general image analysis, security and graphic design.

## EXHIBITORS

### IMAGRAPH CORPORATION

Booth 642

400 West Cummings Park, Suite 3600

Woburn, Massachusetts 01801

(617) 938-5480

Lynn Marino

Marketing Coordinator

Imagraph Corporation designs and manufactures high-performance graphic display controllers for the IBM XT, AT and RT computers. Resolutions ranging from 1280 x 1024 to 512 x 512 by 4, 8, 12, 16, 24 or 32 bits running at 30 or 60 Hz are available. Each board utilizes the Hitachi HD-63484 Graphic Controller, Video Rams and High-Speed Video DACs. CGA Emulation, Tektronix Emulation and a wide range of drivers for various graphics and application packages are supported.

### I.N.A.

Booth 1913

4, avenue de L'Europe

94366 Bry-Sur-Marne, France

(1) 48.75.82.74

M. Henri False

D.R.P., Department Head

T.V. Research Center will show a prototype for the computerized 2-D animation system. Also shown will be PSYCHE 3, marketed by I.N.A. and X.COM Company. The company announces the creation of faceted 3-D image animation software and a synthetic generator called MOSAIC, marketed by T.D.I. I.N.A. will discuss the organization of the annual International Forum on new images in association with the Monte-Carlo International Television Festival (6th edition: February 1987).

## EXHIBITORS

### INFLIGHT SERVICES, INC.

Booth 445

485 Madison Ave.  
New York, New York 10022  
(212) 751-1800  
(800) 221-1297

Robert J. Brooks  
Senior Vice President, Marketing and Sales

Large screen Graphics/Data Video Projection Systems for commercial and institutional applications will be featured. Computer capable for high-resolution requirements. Modular Switcher available for selection of up to 10 separate video/audio sources. Retrodata 67 is the largest one-piece data grade rear projection system commercially available. All projectors feature modular construction. Full line of accessories and interfaces are available for total system flexibility.

### INI COMPUTER PRODUCTS

Booth 1747

6915 Hightech Drive  
Midvale, Utah 84047  
(801) 561-1100  
Mark T. Jenkins  
Sales Manager

INI displays high-resolution color graphics boards for IBM PC AT. The ultra series offers 1280 x 1024 x 8 resolution and other features important for CAD and presentation packages. Powerful array processor provides true solids modeling capability on a PC AT based system. Ten-slot expansion chassis for the AT are also being offered.

### INMOS CORPORATION

Booth 1825

P.O. Box 16000  
Colorado Springs, Colorado 80935  
(303) 630-4361  
Brad Hartman  
Product Manager, Transputer Products  
User Group Contact: Doug Mitchell  
Product Marketing Manager, Video Products

## EXHIBITORS

Inmos manufactures very fast memory devices, video output controllers and parallel processors (Transputers), all of which have applications in the display marketplace. A highly parallel ray tracing computer combining these components will be on display.

### INOVION CORPORATION

Booth 1751

250 E. Gentile

Layton, Utah 84041

(801) 546-2850

H. "Skip" Bullough

Customer Service Manager

The InovionPGS II is a complete system and digitizer. The PGS II can digitize a video signal in true color. The system can display 250,000 colors at one time from a palette of 2.1 million colors.

Output signals include NTSC and RGB video, as well as serial and IEEE488 signals for communications and printers. Free-hand art work and digitized images can be manipulated by using simple ICON functions.

### INTECOLOR

Booth 1036

225 Technology Park

Norcross, Georgia 30092

(404) 449-5961

Bill Fleming

Group Marketing Manager

Major new graphics terminals break the Tektronix 4105 price performance barrier. Advanced features include better screen performance, faster graphics, improved ergonomics, mouse input, paint, circle, zoom, roam commands, two graphic and two dialog screens. OEMS and users can customize the terminal.

## EXHIBITORS

### INTERACTIVE MACHINES INCORPORATED

Booth 236

733 Lakefield Road

Westlake Village, California 91361-2694

(818) 707-1880, ext. 205

David A. Foster

Marketing Communications

IMI will feature ultra-high performance 3-D graphics systems that boast supercomputer processing power, highest picture quality and lowest transport delay for real-time applications including flight simulation, HUD drivers, scientific analysis, solid modeling and kinematics. IMI will be demonstrating sophisticated interactive applications used in avionics, astronautics, robotics and entertainment.

### INTERNATIONAL IMAGING SYSTEMS (I2S)

Booth 2033

1500 Buckeye Drive

Milpitas, California 95035-7484

(408) 262-4444

David B. Racionzer

Marketing Manager

Frank Croft

Manager, Applications Engineering

International Imaging Systems (I2S), a leading supplier of digital image processing hardware and software, will be demonstrating the newly introduced IVAS Display Processor for interactive manipulation of image, graphics and alphanumeric data within a single display. IVAS is particularly suited to the medical, military, remote sensing and digital mapping markets.

### I.S.G. TECHNOLOGIES INC.

Booth 1556

145 Cityview Drive

Toronto, Ontario, Canada M9W 5A5

(416) 243-8400

Henry Vehovec

Vice President, Marketing

Richard MacKay

Manager, Market Development

## EXHIBITORS

I.S.G., an innovative technology leader, is exhibiting the 3DFX product family of high-resolution, high-speed, interactive imagery. The 3DFX, operating under UNIX, uses a proprietary multiple digital processor design and is suited to real-time engineering applications requiring interactive solid-modelling with shading and hidden-line removal. Other applications include medical imaging, molecular modeling, entertainment, simulation and animation.

### ISLAND GRAPHICS

Booth 1847

1 Harbor Drive

Sausalito, California 94965

(415) 332-5400

Diane Ascher

Show Coordinator

Island Graphics develops customized graphics software for OEMs. Island's products include paint, draw, animation, presentation graphics, desktop publishing and image manipulation software. Island Graphics and AT&T are sponsors of the 1986 TRUEVISION Art Contest. Winning entries are displayed in the SIGGRAPH art show. Island personnel are available to discuss OEM arrangements.

### KING CONCEPT CORPORATION

Booth 1154

5190 W. 76th St.

Minneapolis, Minnesota 55435

(612) 831-4466

Dan Lucariello

Sales & Marketing Director

King Concept offers a complete product line of tabletop film processing equipment along with state-of-the-art slide mounts and mounting equipment. Copy stands, film driers and other dark-room photographic products will be displayed.

## EXHIBITORS

### KLOSS VIDEO CORPORATION

Booth 1630

42 Fourth Ave.

Waltham, Massachusetts 02154

(800) KLOSS-33

Steve P. Jackson

Professional Products Division

The new VideoBeam 3000 multi-scan, high-resolution color projection data display monitor which scans from 14 to 34kHz automatically will be displayed. The new Novabeam PC500 for large screen display of PC generated text and images also will be displayed. The PC500 is a high-performance, low-price data projector for the educational and training community.

### KMS ADVANCED PRODUCTS, INC.

Booth 2050

3850 Research Park Drive

Ann Arbor, Michigan 48106

(313) 769-8500

Arnold Proehl

Product Manager

KMS Advanced Products offers video multiplexers that allow multiple workstations to share a single output device. As a result, hardcopy costs per terminal are drastically reduced. The newly introduced RMC-1000 is an IBM PC XT compatible microcomputer, designed for operation under extremely harsh environmental conditions.

### KMW SYSTEMS CORPORATION/AUSCOM

Booth 1613

8307 Highway 71 West

Austin, Texas 78735

(512) 288-1453

Ron Dorst

Senior Vice President

User Group Contact: Jean Richards

Vice President of Sales Administration

KMW's VP200 will be featured exhibiting the newest technology available. KMW also will exhibit its graphic element processors that front end hard copy devices such as electrostatic plotters, printers

## EXHIBITORS

and color cameras, as well as communication products used for direct and remote connection and channel interfaces that allow hi-speed direct connection to IBM mainframes.

### **KOH-I-NOOR RAPIDOGRAPH, INC.**

Booth 1390

100 North St.

Bloomsbury, New Jersey 08804

(201) 479-4124

Jim Sorris

Plotter Supplies Product Specialist

Koh-I-Noor Rapidograph, Inc., a Fotring Company, carries a complete line of drafting and engineering supplies, automated drafting systems, plotter supplies and accessories.

### **KONTRON ELECTRONICS, INC.**

Booth 1067

1230 Charleston Road

Mountain View, California 94039-7230

(415) 965-7020 or (800) 227-8834

Kenneth A. Charles

Product Manager, Image Processing Systems

User Group Contact: Donald Overstreet

Manager Computer Graphics Group

Kontron's image processing systems are complete hardware and software systems either stand-alone, or sub-systems for hosts such as VAX, MicroVAX or SUN-3 Workstations. Kontron's digitizers are designed for high-accuracy and high-resolution applications. Kontron's high-resolution graphic terminal has multi-format window manager and loadable character sets from host.

### **KURTA CORPORATION**

Booth 1050

4610 S. 35th St.

Phoenix, Arizona 85040

(602) 276-5533

Joanne Rush

Manager, Marketing Support

## EXHIBITORS

Kurta Corporation, a leader in the design and manufacture of graphic input devices, offers a full range of digitizers from the innovative, cordless Penmouse input device system to the Series THREE, 42 x 60 digitizer.

### LAZERUS PRODUCTIONS

Booth 852

2821 Ninth St.

Berkeley, California 94710

(415) 845-1237

J.P. Culver

Vice President of Development

Lazerus Productions, the "Developers of Intelligent Machines for Intelligent Users," announces the following products: "The Director," an ergonomically-designed control system for interactive generation and manipulation of models in a real-time, shaded, 4-D universe (the system features integral genlock, frame-grab, keying, output direct to NTSC/PAL video, RGB, high resolution and film recorder) the MACRON Beam 3-D laser Video Projector; and the MEGA Machine/32 — 28 MIPS, 32 bit/pixel high-speed graphics computer.

### LEAR SIEGLER, INC.

Booth 364

901 E. Ball Road

Anaheim, California 92805

(714) 778-3500

Catherine Raftery

Director of Marketing

Models 7105/7107 Color Graphics Terminals — highly featured, designed for general business, process control, engineering and scientific applications. Other features include simultaneous display of up to 16 colors from palette of 4096, 640 x 480 pixel resolution; 16K x 16K virtual address space, zoom and pan; five virtual attributes; storage display list for graphics objects; Tektronix compatibility; and local 2-D transformations.

## EXHIBITORS

### LOGIX, INC.

Booth 149

37551 Schoolcraft Road  
Livonia, Michigan 48150  
(313) 591-1990  
John Massman  
President

The Artech Design Center is a turnkey graphics workstation for producing high resolution 35mm slides, overhead transparencies and color hard-copy. Shaded backgrounds, preformatted and custom charts and graphs, freehand drawing and custom palettes are standard features. A large variety of plotters and thermal printers are also supported.

### LUNDY ELECTRONICS & SYSTEMS, INC.

Booth 228

One Robert Lane  
Glen Head, New York 11545  
(516) 671-9000  
Joseph Mittleman  
Director of Communications

UltraGraf is an intelligent, 3-D, stroke refresh graphics workstation that offers unprecedented design speed and precision. UltraGraf responds instantly to operator commands and features a high resolution, flicker-free display for smooth, continuous image presentation. As such, UltraGraf is suited for all applications where highly detailed design representation is required.

### LYON LAMB VIDEO ANIMATION SYSTEMS INC.

Booth 1044

4531 Empire Ave.  
Burbank, California 91505  
(818) 843-4831  
Gary Hooks

User Group Contact: Gary Hooks

## EXHIBITORS

Lyon Lamb VAS will be displaying the full line of VAS animation controllers and the new ENC VI NTSC Encoder/Sync Generator. Introducing a new video animation controller for PC-based graphics systems and a high-resolution converter for video output from high-resolution CAD systems.

### MANAGEMENT GRAPHICS, INC. (MGI)

Booth 1445

1401 E. 79th St.

Minneapolis, Minnesota 55420

(612) 854-1220

Torben E. Holm

Marketing Manager

User Group Contact: Lori Haug

Marketing Support Administrator

MGI develops and manufactures a complete line of innovative computer graphic slidemaking systems capable of quickly producing high quality presentation graphics in a variety of formats including 4 x 5 and 8 x 10 overhead transparencies.

### MANGUM SICKLES INDUSTRIES, INC.

Booth 2017

3651 E. Wier

Phoenix, Arizona 85040

(602) 967-1116

Boyd Mangum

Sales Manager

User Group Contact: Bob Sharp

Manager, Marketing Technical Support

Vision 600 Computer Graphics System features 4000 line resolution, complete business graphics/free hand capabilities, 1804 fonts, 262K colors, to produce crisp AV quality slides. Also displayed is the CompuCam 2000 with long-roll 35mm pin-registered camera, forward/reverse film transport, film notching and in-camera masking. It also includes an independent optical printer/slide duper that fits PCR, QCR, Samurai, etc.

## EXHIBITORS

### MASSCOMP

Booth 1559

One Technology Park

Westford, Massachusetts 01886

(617) 692-6200

Greg Cullen

Product Marketing Manager

The Aurora/Independent Graphics processor will be displayed on an MC5600 Micro Supercomputer. Aurora/IGP is a high-performance multibus boardset designed for scientific and engineering applications such as simulation, CAD, imaging and mapping. The Helios/Hierarchical Modeling Accelerator will be displayed on an MC5600 with Lightning Floating Point Accelerator. Helios/HMA is a 3-D processor with proprietary circuitry for high-speed modeling, shaded fill and hierarchical segment/object execution.

### MATRIX INSTRUMENTS

Booth 1025

One Ramland Road

Orangeburg, New York 10962

(914) 365-0190

Kate Bochonko

Marketing Communications Manager

At Matrix Instruments, Inc. you can see and learn about mainframe, minicomputer and PC solutions for presentation graphics, CAD/CAM and electronic publishing. Products to be demonstrated at SIGGRAPH '86 will include: the new Matrix QCR-Z, a high-resolution film recorder that offers all the benefits of the QCR D4/2, at four times the recording speed; the Matrix TT200, a thermal transfer printer for cost-effective, color 8 x 10 inch prints and transparencies; and the Matrix PCR, a personal color recorder, for high-resolution (4096 pixels per scanline) color 35mm slides from any computer system. Together, the PCR and TT200 make an excellent office environment presentation graphics output system.

## EXHIBITORS

### **MATROX ELECTRONIC SYSTEMS LTD.**

Booth 1253

1055 St. Regis Blvd.

Dorval, Quebec, Canada H9P 2T4

(514) 685-2630

Gerry Sullivan

Vice President Marketing

Matrox is a designer and manufacturer of board level color graphics and imaging controllers.

Matrox products are available on most currently popular standard microcomputer architectures including VME, O-BUS, MULTIBUS I & II and the IBM PC XT and AT buses. At SIGGRAPH, Matrox will be featuring a high-performance, 1280 x 1024, color graphics processor for the IBM PC AT.

### **MEASUREMENT SYSTEMS INC.**

Booth 2024

121 Water St.

Norwalk, Connecticut 06854

(203) 838-5561

Donald W. Fisher

Marketing Manager

Measurement Systems offers a wide variety of pointing devices for cursor control including joysticks, stiffsticks, track-balls and mice. They are available in all commonly used interfaces such as analog, pulse, coded digital either parallel, binary or serial RS 232C or RS 422.

### **MEDIA CYBERNETICS, INC.**

Booth 1687

8484 Georgia Ave., Suite 200

Silver Spring, Maryland 20910

(301) 495-3305

Doug Paxson

Marketing Communications Manager

Media Cybernetics will demonstrate a complete line of PC-based software including Image-Pro and Dr. Halo DPE (Desktop Publishing Edition). Image-Pro is a complete image processing and graphics software system to analyze, enhance,

## EXHIBITORS

manipulate, store and retrieve images from photographs, X-rays, satellite images and real scenes. Dr. Halo DPE is the newest software solution for merging text and graphics to produce high quality output.

### MEGASCAN TECHNOLOGY, INC.

Booth 944

4005 Vista Vue

Gibsonia, Pennsylvania 15044

(412) 443-5820

Brian Rosen

President

User Group Contact: Brian Rosen

President

Megascan Technology, Inc. will be introducing its UHR-3000 monochrome monitor and display subsystems at SIGGRAPH '86. UHR-3000 systems feature an incredible 4096 x 3278 x 1 resolution at 72Hz non-interlaced. Three hundred dot-per-inch interactive displays are now a reality.

### MEGATEK CORPORATION

Booth 813

9645 Scranton Road

San Diego, California 92121

(619) 455-5590

Gerry MacDonald

Manager, Exhibits & Events

Megatek introduces the newest member of its 9000 series solids rendering systems. The 9300 is custom VLSI-based providing 10 times the processing speed of existing 9000 products. Megatek also introduces its first PC-based, dynamic, interactive, 3-D graphics system. The 911 processes 10,000 shaded and rendered polygons per second.

## EXHIBITORS

### MEGAVISION, INC.

Booth 2032

P. O. Box 60158

Santa Barbara, California 93160

(805) 964-1400

Ken Boydston

Vice President, Marketing

MegaVision will feature the 1024-XM Thousand Line Image Processor. The 1024-XM is a true thousand line image acquisition, processing and display system with computational capability several times that of standard five hundred line image processing systems. In the conceptual design phase of the 1024-XM, it became obvious that to flexibly process one million pixels of 8 or 16 bit gray scale image data at real time rates and at a competitive cost, significant departures from design conventions employed in five hundred line systems would be necessary.

### MEIKO INCORPORATED

Booth 154

6201 Ascot Drive

Oakland, California 94611

(415) 530-3055

Cynthia Peddie

Marketing Manager

Meiko manufactures the Computing Surface parallel processor system using 32-bit 10MIP RISC-like processors — from one to 157 processors. System topology is reconfigurable and allows users to assign processors to fit algorithm, e.g., ray-tracing and image processing. The system can be used as a processor farm with micro VAX or PC front-end. High resolution graphics with individual processors, 1024 x 1024 x 24 bits.

### MERCURY COMPUTER SYSTEMS, INC.

Booth 1329

600 Suffolk St.

Lowell, Massachusetts 01854

(617) 458-3100

Elizabeth Gitelman

Marketing Consultant

## EXHIBITORS

Mercury manufactures the ZIP 3200 Series array processors for real-time signal and image processing. The ZIP Series includes fixed and floating point processors on Q-bus, VMEbus and Multibus. The ZIPs are programmable in a C-like language, with libraries for signal and image processing functions available as well. The ZIP's open-ended architecture allows for one to five ZIPs to be configured in a system for performance ranging from eight to 80 MFLOPS.

### **MERET, INC.**

Booth 2008

1815 24th St.

Santa Monica, California 90404

(213) 828-7486

Rebecca Axelrod

Marketing Administrator

MERET is a manufacturer of fiber optic communication links, both components and complete turnkey systems. These products include Wideband analog video to 300MHz (RGB and monochrome, CCTV, and TTL/ECL data links to 150Mbps). Applications supported include: TEMPEST networks, military displays, CAD/CAM imaging and others. MERET fiber optic links are available as board mountable hybrids; OEM boards for placement in hosts monitors or switchers; in a desktop unit; and fully turnkey 19" rack mountable chassis system.

### **METHEUS CORPORATION**

Booth 1032

5510 NE Elam Young Parkway

Hillsboro, Oregon 97124

(503) 640-8000

Angus Mitchell

Director of Marketing

Metheus, The Graphics Company, designs and manufactures a wide range of OEM graphics controllers. Featured at SIGGRAPH '86 will be the Omega 3000 Series featuring up to 32 bit-planes and resolutions up to 2048 x 2048 (viewable) and Omega PC with outstanding performance and resolution in a PC bus format.

## EXHIBITORS

### MICROFIELD GRAPHICS, INC.

Booth 2005

8285 S.W. Nimbus Ave., Suite 161

Beaverton, Oregon 97005

(503) 626-9393

Jack Liskear

Vice President, Marketing and Sales

Microfield Graphics designs and manufactures high-resolution, high-performance graphics processors for OEM use in the IBM PC AT, PC RT and compatible machines. These graphics processors are used to drive displays in CAD/CAM, computer-aided engineering, mapping and other graphics-intensive applications.

### MINOLTA CORPORATION

Booth 2054

101 Williams Drive

Ramsey, New Jersey 07446

(201) 825-4000 x528

Timothy J. McCann

Technical Representative, Industrial Meters,  
Photographic Division

Minolta will display its TV Color Analyzer II. The instrument is used to objectively set the white balance on a color monitor. In addition, Minolta will display its line of Illuminance, Luminance and Colorimeters.

### MITSUBISHI ELECTRONICS AMERICA, INC.

Booth 1659

991 Knox St.

Torrance, California 90502

(213) 515-3993

Evie Turner

Advertising/Promotion Coordinator

Complementing its G500 printer/plotter, Mitsubishi introduces its new G650 thermal transfer color printer designed to produce "B" size engineering graphics at 300 dpi. New monitors on display include the Intelligent Graphics Monitor with a built-in graphics controller, the 14" auto scan (15.75-35 KHz) monitor, and 15" and 21" flat square CRT designs.

## EXHIBITORS

### **MITSUBISHI INTERNATIONAL CORP.**

Booth 1851

520 Madison Ave., Dept. GMD-B

New York, New York 10022

(212) 605-2000

John Tucci

Sales Manager

Mitsubishi features the Shinko Thermal Transfer Color Graphic Printer: Model CHC-335 Print 'A' size (8½" x 11") color images and the CHC-65 for 'B' size (11" x 17") color images. The Shinko family of color printers meets any high quality color hard copy needs.

### **MODGRAPH, INC.**

Booth 1856

56 Winthrop St.

Concord, Massachusetts 01742

(617) 371-2000

Michael Berman

Marketing Manager

Modgraph manufactures high-resolution monochrome and color graphics terminals emulating the Tektronix 4010/14 and 4105 terminals. In addition, Modgraph manufactures high-resolution graphics boards for IBM PCs and compatibles. These boards support GEM, WINDOWS and a range of graphics applications packages.

### **MONITERM/AMTRON**

Booth 1667

5740 Green Circle Dr.

Minnetonka, Minnesota 55343

(612) 935-4151

Nancy Cornish

Sales Coordinator

User Group Contact: Tom Johnson

Vice President Sales

The Viking 1 CRT/Controller with a resolution of 1280 x 960 displays 60 lines with 128 characters per line on a 19" screen. The Viking 1 is said to be the highest resolution, highest performance display system available on the IBM PC XT, AT and RT. The Controller generates high-speed graphics with

## EXHIBITORS

the Hitachi HD63484 ACRTC, and has a “frame grabber” which allows standard programs to be displayed in their native 24 x 80 format.

### MONITRONIX CORPORATION

Booth 1052

2971 Silver Drive  
Columbus, Ohio 43224  
(614) 262-0334  
Beth Chichka  
Marketing Coordinator

User Group Contact: Beth Chichka

Monitronix offers a line of ultra-high-resolution color monitors on the leading edge of technology. Our products utilize the same architecture and modular design to enhance superior price performance. The MX-200 offers 1280H x 1024V resolution and the MX-4190 offers 1600H x 1280V resolution.

### MULTIWIRE DIVISION — KOLLMORGEN CORPORATION

Booth 1243

250 Miller Place  
Hicksville, New York 11801  
(516) 933-8300  
Gerard R. Stoehr  
Product Manager

User Group Contact: James Anderson  
Sales Manager

Multiwire will exhibit the design and manufacturing of high density, high-speed discrete wired circuit boards for prototype and production. Also shown will be standard panel prototyping service and Express Bus quick turnaround service.

### NATIONAL COMPUTER GRAPHICS ASSOCIATION

Booth 844

Suite 200, 2722 Merrilee Drive  
Fairfax, Virginia 22031  
(703) 698-9600  
Pam Damer  
Manager, Exhibits and Registration

## EXHIBITORS

NCGA will have information on its eighth annual conference and exposition in Philadelphia, Pennsylvania, March 22-26, 1987. Specialized conferences for 1987 target industrial engineering and manufacturing (Boston, August 18-20) and computer publishing (San Francisco, September 28 to October 1). Also available will be information on *Computer Graphics Today*, NCGA's official publication, and membership services.

### NATIONAL SEMICONDUCTOR CORPORATION

Booth 439

2900 Semiconductor Drive  
Santa Clara, California 95051  
(408) 721-6528  
Roger Reak  
Graphics Marketing Director

National Semiconductor Corporation, a manufacturer of high-performance VLSI devices, will provide information on its Advanced Graphics Chip Set, a modular silicon solution to today's high-performance graphics requirements. The set includes a raster graphics processor, bitBlt processing unit, video clock generator and video shift register.

### NATIONAL TECHNICAL INFORMATION SERVICE

Booth 677

5285 Port Royal Road  
Springfield, Virginia 22161  
(703) 487-4812  
Leita Yiasemides  
Exhibit Manager

The National Technical Information Service (NTIS) is the central source for federally funded research and development reports and software. NTIS will be featuring a highly advanced computer graphics system, DATAPLOT, developed by the National Bureau of Standards, and other graphics systems developed for and by the federal government which are available to U.S. industry.

## EXHIBITORS

### NEC ELECTRONICS INC.

Booth 242

401 Ellis St.

Mountain View, California 94039-7241

(415) 965-6180

Bruce Hildebrand

Director, Corporate Communications

NEC manufacturers advanced semiconductor products that include advanced CMOS microprocessors, single-chip microcomputers, microprocessor support device, memory devices, video RAMs, graphics devices, linear IC's, optoelectronic components, fluorescent indicator panels and application specific integrated circuits (ASIC's).

### NEC INFORMATION SYSTEMS, INC.

Booth 1841

1414 Massachusetts Ave.

Boxborough, Massachusetts 01719

(617) 264-8000

Tom Edmundson

NECIS manufactures an engineering workstation featuring 20" color high resolution (1280 x 1024 pixels) monitor with full motion video option. Also featured is the automatically adjusting Multi-sync monitor with the Advance Personal Computer IV, a powerful AT compatible supporting EGA and CGA graphics boards. The company also manufactures high resolution Pinwriter dot matrix printers including Model P5XL which uses both color fabric and multistrike nylon film ribbons.

### NEO-VISUALS, INC.

Booth 1360

201 Consumers Road, Suite 203

Willowdale, Ontario, Canada M2J 4G8

(416) 491-8485

Bob Munroe

Promotions Director

User Group Contact: Bob Munroe

## EXHIBITORS

Neo-Visuals, Inc. presents VISHAD, a device independent 2-D/3-D graphics and animation package. With sophisticated modeling and rendering features, VISHAD meets the requirements of the demanding artist, architect, engineer or researcher. A font editor was recently released and a paint package and an IGES interface are both under development.

### NEW MEDIA GRAPHICS CORPORATION

Booth 1459

279 Cambridge St.  
Burlington, Massachusetts 01803  
(617) 272-8844  
Martin Oakes  
Vice President, Sales

New Media Graphics Corp. will introduce the GraFlex 32-bit co-computer that upgrades the IBM PC AT to rival the most powerful CAD/CAM/CAE workstations. The GraFlex uses 68020, 68881, 63484 and VRAMS, takes three slots in AT, and is MSDOS and/or UNIX supported.

### NICOLET COMPUTER GRAPHICS

Booth 822

777 Arnold Drive  
Martinez, California 94553  
(415) 372-7568  
Susan Keeley  
Marketing Communications Supervisor  
  
User Group Contact: Bill Manos  
Product Marketing Manager

Nicolet Computer Graphics will be demonstrating its comprehensive line of digital pen plotters. The ZETA 8 and ZETA 887 desktop plotters are used in business graphics as well as scientific and industrial applications. The ZETA 824 and ZETA 824CS "D" size plotters and the ZETA 836 and ZETA 836CS "E" size plotters are ideal for CAD/CAM, mapping and project management. Nicolet also will be demonstrating its newest ZETA family member, the ZETA VUE Graphic Slide System for 35mm slide making needs.

## EXHIBITORS

### NISE, INC.

Booth 2049

20018 State Road  
Cerritos, California 90701

(213) 860-6708

Roelof R. Jonker  
General Manager

User Group Contact: Donna Davis  
Secretary

“Rembrandt,” “Renoir” and “Rubens” are versatile, reliable and economical color graphic cameras. Analog RGB or TTL versions, as well as Digital with interchangeable film cameras from 16mm all the way up to 8 x 10 formats, are available.

### NOVA GRAPHICS INTERNATIONAL

Booth 839

1015 Bee Cave Woods  
Austin, Texas 78746

(512) 327-9300

Joe D. Sims  
Director of Marketing

Nova Graphics International provides graphics software products based upon international standards. Versions of NOVA\*GKS in C and Fortran are available for most computing environments. Firmware-based implementations of NOVA\*CGI are provided in partnership with manufacturers of CGI based hardware products. Expert consulting, training and custom development services related to graphics are available.

### NUMBER NINE COMPUTER

Booth 428

725 Concord Ave.  
Cambridge, Massachusetts 02138  
(617) 492-0999

Will Frentz  
Executive Vice President

Number Nine premieres its new intelligent PEPPER Graphics System: a series of one-monitor PC display solutions for professional applications. All PEPPER boards couple memory mapping with

## EXHIBITORS

advanced graphics VLSI in a CGA/MDA/PGC compatible architecture. Our ProLine series imaging board provides a 640 x 480 x 16 real-time video capture while our design board delivers 1280 x 1024 x 8, non-interlaced; both with 32-bit graphics micro processor assist.

### NUMONICS CORPORATION

Booth 1417

418 Pierce St.

Lansdale, Pennsylvania 19446

(215) 362-2766

Morris B. Bowles

National Sales Manager

Numonics Corporation is a leading producer of high-quality digitizers and plotters, committed to reliable, state-of-the-art, affordable products for the distributor, dealer and end user. Numonics offers the Model 5460 and the 5860 Plotters, two excellent high-resolution plotters (0.001").

Numonics also offers a full line of high-performance digitizers fully compatible with most CAD systems available on the market today.

### OCLI

Booth 437

2789 Northpoint Parkway

Santa Rosa, California 95407-7397

(707) 545-6440

Brenda Ledyard

Trade Show Coordinator

User Group Contact: Bob Carlson or

Mary Noordhoff

Sales Managers

OCLI will display anti-glare glass panels and filters that eliminate glare from the face of visual displays. OCLI filters enhance contrast, reduce glare up to 94 percent and eliminate glare-induced eye strain.

## EXHIBITORS

### OMNICOMP GRAPHICS CORPORATION

Booth 1239

1734 W. Belt North

Houston, Texas 77043

(713) 464-2990

Bernadette Platis

Marketing Communications Representative

Omnicom Graphics Corporation designs, manufactures and markets high-performance, high-resolution, GKS compatible graphics display controllers for system integrators, OEMs and sophisticated end users. Products range from very high-performance MULTIBUS II graphics subsystems to plug-in graphics cards and parallel interfaces for the IBM PC marketplace. Graphics toolkits are available for all Omnicomp manufactured graphics products.

### AXBERRY

Booth 1147

180 Broad St.

Carlstadt, New Jersey 07072

(201) 935-3000

James Aneshansley

Director of Marketing

Oxberry manufactures three pin-registered, bulk loading film cameras for computer graphic off-loading of high resolution film recorders: MX-Cine for cinemagraphic off-loading on 8, 16 and 35mm film; MX-4 for 35mm slide production from the Matrix Q.C.R.; and PC-35 for 35mm slide production from the Matrix P.C.R.

### PANASONIC INDUSTRIAL COMPANY

Booth 1467 & 1472

Two Panasonic Way

Secaucus, New Jersey 07094

(201) 392-4603

Panasonic Industrial Company's Custom Components Division is displaying ultra high-resolution color cathode ray tubes designed for fast scan applications in 13", 15" and 19" configurations.

## EXHIBITORS

A full line of high- and super-high resolution displays for the OEM are included. Panasonic also is displaying a line of Optical Disc products.

### **PANSOPHIC SYSTEMS, INC.**

Booth 254

2001 Sheppard Ave. E., Suite 400  
North York, Ontario, Canada M2J 4J7  
Phil Girouard  
Product Marketing Manager  
709 Enterprise Drive  
Oakbrook, Illinois 60521  
(800) 323-7335  
In Illinois or Canada (312) 355-9600

Pansophic Systems, Incorporated, one of the world's largest independent software companies, introduces their family of graphics software products. The D-PICT product line forms a powerful and comprehensive system for the production of quality graphics in the areas of business, science and customized application development. With a broad spectrum of solutions, D-PICT graphics serves all organizational needs.

### **PARALLAX GRAPHICS, INC.**

Booth 645

2500 Condensa St.  
Santa Clara, California 95051  
(408) 727-2220  
Stu Taylor  
Product Support Manager

Parallax Graphics manufactures graphic and videographic display controllers. Parallax will demonstrate the 1280 Series videographic processor (Q-bus and ATbus versions). Display format is 1280 x 1024, 60Hz non-interlaced, with real-time digitized NTSC video and full graphics functions.

## EXHIBITORS

### PERCEPTICS CORPORATION

Booth 1046

Pellissippi Center

Knoxville, Tennessee 37922

(615) 966-9200

Michael W. Howard

Sales Manager

On display is the Model 9200 real time image processor with over 100 menu-selectable image processing functions, executed by internal micro-computer. The 9200, which processes in both transform and spatial domains, can stand alone or be controlled by a host computer. LaserWare, Laser Archival Storage and Retrieval System software provides a complete optical disk file system for the DEC VAX computers using the VMS operating system.

### PERICOM INC.

Booth 1641

2290 205th St., Suite 103

Torrance, California 90501

(415) 382-8800 or (213) 618-9190

James H. Smith

Vice President of Sales

User Group Contact: James H. Smith

PERICOM manufactures a broad line of high-performance interactive graphics terminals and accessories, featuring both monochrom and color displays with emulations of Digital VT100/220, Tektronix 4107, 4109, 4010, 4014, Medusa and Westward.

### PERITEK CORPORATION

Booth 250

5550 Redwood Road

Oakland, California 94619

(415) 531-6500

Joannie Montagne

Customer Service Administrator

User Group Contact: Thomas Birchell  
President

## EXHIBITORS

On display at Peritek's Booth #250 is the new VCK/VCX series high-resolution color graphics interfaces for the Q-Bus and Unibus. Compatible with the VAX family from MicroVAX II to main-frame VAXs, the new series complements Peritek's existing line of color and monochrome raster graphics controllers, support software and graphics systems.

### PIXAR

Booth 654

P.O. Box 13719

San Rafael, California 94913

(415) 499-3600

Barbara Koalkin

Marketing Manager

Pixar™ is featuring the Pixar Image Computer™, the first general-purpose computer that combines the generality required for computer graphics with the speed required for image processing. The system has a high-resolution picture memory tightly integrated with the fast processor, and can be programmed to satisfy a wide variety of applications.

### PIXELWORKS

Booth 2006

225A Lowell Road

Hudson, New Hampshire 03051

(603) 880-1322

Michael Lerer, President

Rattan Dhar, Vice President Sales/Marketing

Brenda Blaine, Director of Operations

Pixelworks offers Clipper — a low-cost, high-performance, high-resolution, raster graphics controller that brings mainframe graphics capabilities to micro-based systems.

### POLHEMUS NAVIGATION SCIENCES

Booth 1672

P.O. Box 560, 1 Hercules Drive

Colchester, Vermont 05446

(802) 655-3159

James C. Krieg

Program Manager, Commercial Products

## EXHIBITORS

Designer and manufacturer of 3SPACE® Trackers and digitizers that operate on the same electromagnetic field principle. The 3SPACE Tracker continuously updates position and orientation to offer complete six degree-of-freedom measurement of a small moveable sensor with respect to a fixed source. The 3SPACE instruments measure the X, Y, and Z position plus the orientation angles (azimuth, elevation, and roll) of any point in space for the digitizer stylus or Tracker sensor.

### PRINCETON GRAPHIC SYSTEMS

Booth 1620

601 Ewing St., Bldg. A  
Princeton, New Jersey 08540  
(609) 683-1660  
Keith A. Shaw  
Marketing Associate

Princeton Graphic Systems manufactures, markets and supports high-resolution RGB color and monochrome monitors, and accessories for PCs. The HX-12 series features the two-time award winning HX-12; .28mm HX-9 with green/amber; IBM/Apple color switches, and tilt-and-swivel base; and the .28mm, EGA-compatible HX-12E and HX-9E. The super-resolution SR-12 and .26mm, PGC-compatible SR-12P monitors and amber monochrome MAX-12 also will be displayed.

### PRIOR DATA SCIENCES

Booth 647

39 Robertson Road, Bell Mews Plaza  
Nepean, Ontario, Canada K2H 8R2  
(613) 820-7235  
Richard Maheu  
International Sales Manager

PRIOR Data Sciences' PRIOR GKS/C is a level 2c implementation of the GKS standard, available in "C", Fortran and Ada languages for UNIX, VMS and DOS operating systems.

Another product, INTERMAPHICS, is an interactive mapping and graphics presentation system based on PRIOR GKS/C, operating on a UNIX-based graphic workstation.

## EXHIBITORS

### PROTEON, INC.

Booth 239

4 Tech Circle

Natick, Massachusetts 01760

(617) 655-3340

Patty Peto

Marketing Communications

Proteon, Inc. (Natick, MA) is the leading systems supplier of token-ring based local area network (LAN) systems. Proteon's high performance ProNET<sup>®</sup> network is designed to link personal computers, minicomputers and mainframes.

Proteon offers three network speeds for local data communications. The ProNET-4 (IEEE 802.5 compatible) transmits data at 4Mbps. The ProNET-10 at 10Mbps and the ProNET-80 at 80Mbps.

### QMS, INC.

Booth 868

1 Magnum Pass

Mobile, Alabama 36618

(205) 633-4300

Robert C. Girola

Public Relations Manager

QMS will be displaying its Laser Printing Systems, which are intelligent, non-impact computer printers which produce and merge complex graphics with multi-font text for office correspondence, electronic publishing, CAD/CAM, manufacturing and scientific applications. Also on display will be Impact Printer Controllers, which are graphics controller boards and interfacing for line and dot matrix printers for labeling, bar coding and forms printing applications. Products include Magnum<sup>®</sup> and Wedgebox<sup>®</sup> controllers.

### QUANTEL

Booth 836

3290 West Bayshore Road

Palo Alto, California 95051

(415) 856-6226

Douglas Schwartz

Marketing Communications Manager

User Group Contact: Tony Redhead

## EXHIBITORS

Quantel will be showing its Digital Production System comprised of a Harry, Paintbox and Encore, all digitally linked. Quantel also will show the Paintbox.

### QUANTUM DATA INC.

Booth 252

455 Kehoe

Carol Stream, Illinois 60188

(312) 668-3301

Chuck Wozniak

Applications Engineer

Video Signal Generators:

Variable scan rate and pixel rate to 200Mhz. For manufacturers and users of video monitors during design and manufacturing.

### RAMTEK CORPORATION

Booth 1013

2211 Lawson Lane

Santa Clara, California 95050

(408) 988-2211

Regina Muccillo

Marketing Communicator

User Group Contact: Ray Davis

Software Analyst

Ramtek announces two new products: the 4311 graphics terminal and the industry's first fully integrated, 32 bit UNIX based workstation designed specifically for imaging applications, featuring 1280 x 1024 resolution, high speed communications and superior graphics. The 4311 is a high resolution terminal offering GKS, CGI and Tektronix 4115 compatibility.

### RASTER TECHNOLOGIES

Booth 859

Two Robbins Road

Westford, Massachusetts 01886

(617) 692-7900

Kristi Furrer

Marketing Communications Manager

## EXHIBITORS

Raster Technologies will be exhibiting its powerful new data visualization package — VISEEDGE, plus enhanced members of the popular Model One family of 2-D and 3-D Graphics Systems. Demonstrations will include presentations of VISEEDGE as well as interactive demonstrations of CAD/CAE, research and scientific modeling, animation plus military and aerospace applications.

### **SABER TECHNOLOGY CORPORATION**

Booth 872

2381 Bering Drive  
San Jose, California 95131  
(408) 435-8600

Lawrence A. Dorie  
Vice President Marketing, Sales

Introducing Excalibur from Saber Technology Corporation, the latest in the SaberStation series of graphics workstations. With ultra-high screen resolution, true color and image dynamics, Excalibur achieves a level of performance that is true high fidelity.

### **SAMPO CORPORATION OF AMERICA**

Booth 2039

5550 Peachtree Industrial Blvd.  
Norcross, Georgia 30071  
(404) 449-6220

George Korzeniewski  
Vice President

On display will be monitors that are 13" and 19" high with medium resolution color display, RGBI and analog input: 12", 15", 17" and 19" high resolution monochrome display monitor chassis 15.75Hz to 64KHz horizontal frequency; 12", 14" and 15" high resolution monochrome display monitors; CRT terminals; 9" Liquid Crystal Shutter color display monitors.

## EXHIBITORS

### SCIENCE ACCESSORIES CORPORATION

Booth 628

970 Kings Highway W.

Southport, Connecticut 06490

(203) 255-1526

Skip Cleveland

Vice President, Sales

Introducing the GP-7 Mark II Digitizer: the Mark II has all the features of the GP-7 but a larger active area.

SAC also will display the popular GP-8 Digitizer with active areas up to 60" x 72". The GP-8-3D generates X, Y, Z, cartesian coordinates within 10' x 10' x 10' active volume.

### SCRIPTEL CORPORATION

Booth 1443

4145 Arlingate Plaza

Columbus, Ohio 43228

(614) 276-8402

Nicholas G. Venetis

Vice President, Marketing

User Group Contact: Nicholas G. Venetis

Scriptel Corporation, manufacturer of the truly transparent graphics tablets, is announcing its new Opaque Digitizer made of a sturdy injection molded plastic and featuring the Scriptel Universal Interface. Both models feature our Resistive Decoding Technology (RDT™), which offers improved performance and reliability when compared to conventional wire-grid electromagnetic digitizers.

### SEIKO INSTRUMENTS USA, INC.

Booth 819

1130 Ringwood Court

San Jose, California 95131-1726

(408) 943-9100

Cheryl Landman

Manager, Marketing Communications

User Group Contact: Cheryl Landman

Seiko features the new CH-5300 Color Hardcopiers, which offer multiple interfaces, multiple color modes, and A/B size images with up to 4,912

## EXHIBITORS

colors. Also displayed, the new GR-1105 Color Graphics Terminal and the GR-2414. The 14" and 19" terminals offer 2-D transformations, display list, advanced monitor design and high speed processing. Digitizing tablets, featuring the new SCREENPLAY tablet which is completely format, function and plug compatible with Bit Pad Two, also will be demonstrated.

### **SELDIN PUBLISHING, INC.**

Booth 1947

1061 S. Melrose, Suite D  
Placentia, California 92670  
(714) 632-6924  
Nina J. Foster  
Marketing Coordinator

*Hardcopy* Magazine, the international magazine for DEC users, features regular columns, hardware and software round-ups, buyers' guides, state-of-the-art graphics, language, robotics, office automation and communications. Also included are trends, forecasts and industry updates. *Hardcopy* is written for OEM's, systems houses, DP managers and various professionals involved in the DEC market.

### **SHIMA SEIKI MANUFACTURING LTD.**

Booth 1832

440 Forsgate Drive  
Cranbury, New Jersey 08512  
(609) 655-4788  
Ken Yamamichi  
Sales Manager

Shima Seiki introduces the SDS-480 Design System. Software includes font registration, color gradation, color matching using the Munsell System, color coordination, water color function, pattern making for textiles, image overlay and 3-D processing. Input features the internal scanner camera with output to thermal and ink jet hard copies.

## EXHIBITORS

### SILICON GRAPHICS

Booth 413

2011 Stierlin Road

Mountain View, California 94043

(415) 960-1980

Dr. Alice Ahlgren

Marketing Communications Manager

User Group Contact: Zsuzsanna Molnar

Technical Support Manager

Silicon Graphics will be demonstrating its full line of superworkstations which combine high performance computing with 3-D graphics capability. These superworkstations are aimed at the conceptual design, analysis and simulation (CDAS) market.

### SKY COMPUTERS, INC.

Booth 663

Foot of John Street

Lowell, Massachusetts 01852

(617) 454-6200

Bruce Nelson

Marketing Communications

SKY Computers designs and manufactures board level arithmetic peripherals for supermicrocomputers. Products displayed at SIGGRAPH '86 include both floating point array and scalar processors, and fixed point signal and image processors. Applications for these products include: graphics, CAD/CAE, seismic processing, medical imaging, bio-technics and robotics. SKY offers contract hardware maintenance, software updates, telephone hotline support and volume discounts to OEM's.

### SLIDETEK INC.

Booth 233

900 Larkspur Landing Circle, Suite 100

Larkspur, California 94939

(415) 461-5400

Noemi Bolvary

Vice President, Sales & Marketing

## EXHIBITORS

Artists and illustrators use the SlideTek presentation graphics system to produce professional quality business and scientific visuals. The system features real-time display, simultaneous multi-slide revisions and sophisticated text and charting functions. It also supports imported text, data and spreadsheet files.

Full color frame grabbing input, 3800 pixel color 35mm 4 x 5, 8 x 10 film output and high resolution color and black and white hardcopy output is offered.

### SOGITEC

Booth 1820

32, Bd. de la République

92100 Boulogne, France

(1) 46.08.13.13

Véronique Damien

International Executive Producer

SOGITEC, located in Paris, has set up a computer animation film production center specializing in the production of TV commercials and graphics, industrial and feature films. This leading European production center relies on computer generated image software developed by SOGITEC and a powerful computer complex.

### SPRINGER-VERLAG NEW YORK, INC.

Booth 1290

175 Fifth Ave.

New York, New York 10010

(212) 460-1578

Garrett Kiely

Product Manager

User Group Contact: Lynn Montz

Editor

*Computer-Aided Design, Graphics Programming, Computer Animation, Robotics and Computational Geometry* are just a few of the new books on display for SIGGRAPH '86.

You'll also find such journals as *The Visual Computer*, *New Generation Computing* and *Engineering with Computers*.

## EXHIBITORS

### SPSS INC.

Booth 854

444 N. Michigan Ave.

Chicago, Illinois 60611

(312) 329-2400

Philip Baldacci

Administrative Assistant

SPSS Inc. is exhibiting SPSS Graphics: a menu and form driven system for creating high-quality charts and maps for presentations and reports. Mainframe and micro-computer based data analysis and reporting software also is being displayed. The software can be used for a wide variety of applications from marketing to computer performance analysis.

### STEREOGRAPHICS CORPORATION

Booth 150

P.O. Box 2309

San Rafael, California 94912

(415) 459-4500

Robert S. Karp

Vice President, Marketing

*3Display*™ imaging systems bring the unique advantages of true stereoscopic depth perception to the whole range of 3-D graphics. Current uses include CAD/CAE, flight simulation, FEA, molecular modeling and mapping. High-resolution *3Display* hardware is plug-compatible with any computer. *3Display* technology is full color and flickerless.

### STORAGE CONCEPTS, INC.

Booth 1152

3198-G Airport Loop Drive

Costa Mesa, California 92626

(714) 557-1962

Martin R. Bock

Marketing Manager

Real-time disk subsystems for storage and retrieval of digital images at 30 frames per second for users of VME, MULTibus, VERSAbus and Qbus, including DEC MicroVAX II. Applications include medical imaging (digital radiography),

## EXHIBITORS

vehicle and flight simulation, communications and general purpose imaging requiring storage of real-time digital images.

### STUDIO SYSTEMS JOURNAL

Booth 2056

Railroad Square, 1880 Santa Barbara St.

P.O. Box 13859

San Luis Obispo, California 93401

(805) 543-7394

Donald A. Kassler

Marketing Director

User Group Contact: William Hood

Editor

*Studio Systems Journal* is a full color, bi-monthly tabloid devoted to those creative professionals, such as graphic artists, architects and designers, wanting to enter the world of computer-based graphic systems. The format provides an educational forum, i.e., a "living laboratory," for these potential users to gain access to affordable real world applications.

### SUMMAGRAPHICS CORPORATION

Booth 1413

777 State St. Extension

Fairfield, Connecticut 06430

(203) 384-1344

Lisa M. Shay

Sales Communications Administrator

Summagraphics will be exhibiting the MM 1812, a high resolution, superior reliability graphics tablet with an 18" x 12" active area; Microgrid II, a durable and lightweight tablet with high-resolution, accuracy and reliability in active area sizes from 17" x 24" up to 42" x 60"; new low cost SummaMouse with driver/menu software; and the SummaSketch, an IBM PC-compatible graphics tablet that enhances the PC capabilities. MacTablet turns the Macintosh into a real graphics workstation.

## EXHIBITORS

### SUN MICROSYSTEMS, INC.

Booth 863

2550 Garcia Ave.

Mountain View, California 94043

(415) 960-1300

Charles E. Simmons

Director, Customer Marketing

The Sun-3 family of high-performance, general-purpose workstations integrates a full 32-bit architecture with a MC68020 processor, industry standard VMEbus, high-resolution graphics, high-speed local area networking and Sun's operating system. Based on the Berkely 4.2 version of UNIX, Sun's OS adds major enhancements for networking, graphics and the user interface.

### SUPERSET, INC.

Booth 650

11025 Roselle St.

San Diego, California 92121

(619) 452-8665

Pat Mintz

Marketing Support

Superset will demonstrate the Superset Image Management System (SIMS). Images from a variety of sources, both raster and vector, can be merged, manipulated, stored, edited and outputted to more than 100 devices.

Superset will also demonstrate a 1536 x 1152 x 24-bit display featuring a 4000-line paint package.

### SYMBOLICS GRAPHICS DIVISION

Booth 1436

1401 Westwood Blvd.

Los Angeles, California 90024

(213) 478-0681

Larry Schnur

Marketing Manager

Symbolics will be demonstrating the new S-Pixar System, an integrated image generation and processing system. Symbolics Graphics Division produces modular hardware and software for applications such as production, design and scripting, animation graphics and research.

## EXHIBITORS

### TALARIS SYSTEMS INC.

Booth 659

5160 Carroll Canyon Road, P.O. Box 261580

San Diego, California 92126

(619) 587-0787

Sonny Burkett

Vice President, Sales & Marketing

Talaris Systems will be exhibiting its fully-compatible family of versatile laser printers, the Talaris 2400, 1200 and 800, which feature a full-page bit-map for generating text and vector or raster graphics. Talaris will be introducing new versions of its QDRIVE, a tool for integrating text and graphics, and LASERPLOT, a package for accessing the extensive graphics capabilities of the Talaris printers.

### TAT GRAPHICS GROUP

Booth 1063

1270 Lawrence Station Road, Building E

Sunnyvale, California 94089

(408) 734-2202

Robin Lutchansky

Marketing Manager

TAT Graphics, specializing in graphics display subsystems, introduces a high-resolution, single-screen solution with the new ADI driver.

Hardware pan and zoom is one of several user-friendly features included. The Galaxy EGX2 graphics board, offering CAD users more than twice as many pixels as the EGA, also will be demonstrated.

### TDI (THOMSON DIGITAL IMAGE)

Booth 1813

41, rue Washington

75008 Paris, France

1.45.61.96.00

Frédérique Janssen

Marketing Manager

TDI (Thomson Digital Image) is at the forefront of computer generated imagery in Europe.

TDI's full product range includes: creation and

## EXHIBITORS

animation of 2-D and 3-D images with high-end special effects for commercials, corporate and scientific films, architectural simulations, TV titles and logos, and cinema special effects all produced from our proprietary in-house software.

TDI also sells software packages on UNIX workstations for the modeling, lighting, animation and rendering of synthetic imagery.

### TECH-SOURCE INC.

Booth 950

1175 Spring Centre South, Suite D  
Altamonte Springs, Florida 32714  
(305) 788-9100

William Simons

Director of Marketing

Tech-Source introduces the CM-150, a 19" 1280 x 1024 color graphics monitor operating at 110 Mhz video rate, featuring excellent performance in the smallest package available; and the GDS-3800, a modular, pixel addressable VMEbus based board set using bit slice technology to generate a 1280 x 1024 x 40 display capable of drawing 100,000 short random vectors/second.

### TECHEXPORT, INC.

Booth 147

244 Second Ave.  
Waltham, Massachusetts 02154  
(617) 890-6507

Donald Berman

President

Techexport is an export marketing company specializing in graphics, display and imaging products. It has subsidiaries in England, France, Germany, Switzerland and Italy, and distributors throughout the world. Techexport handles licensing, shipping, customs, brokerage and local language printing, as well as sales and service.

## EXHIBITORS

### TECHNOLOGY & BUSINESS COMMUNICATIONS

Booth 2029

730 Boston Post Road

Sudbury, Massachusetts 01776

(617) 443-4671

Bonnie Kameny

Exhibit Manager

The S. Klein Computer Graphics Group will feature its new *Computer Graphics Review* magazine plus new titles in its Library Series on artificial intelligence, PC-CAD, etc. Also featured will be *The S. Klein Newsletter*.

### TELEDYNE POST

Booth 1455

700 Northwest Highway

Des Plaines, Illinois 60016

(312) 299-1111

Dick Polloway

Vice President, Marketing

Teledyne Post markets the AT&T Omnidraft™ PC Based CAD System. Also available is a complete line of drafting media, vellums and bonds that are especially prepared for use in plotters in either CAD/CAM business or graphic arts applications, and a complete line of pens, points, adaptors, inks and accessories for most major plotters.

### TELMAT

Booth 1815

B.P. 12—Z.I. Route d'Issenheim

68360 Soultz Cedex, France

(1) 89.76.51.10

Christian Pflieger

Engineer

TELMATS CUBI 7 is a realistic, synthetic image production system. Its open architecture allows a wide range of configurations, from the color Z-buffered raster subsystem, to the fully independent 3-D workstation. Special effects on images are integrated in remote-loaded microcode. CUBI 7 is used in a wide spectrum of applications where quality at low cost is imperative.

## EXHIBITORS

### TEMPLATE, THE SOFTWARE DIVISION OF MEGATEK CORPORATION

Booth 813

9645 Scranton Road  
San Diego, California 92121  
(619) 455-5590  
Gary Romans  
Template Marketing Manager

BLOX<sup>®</sup>/TEMPLATE<sup>®</sup>, a UIMS system, will be introduced. TEMPLATE also will demonstrate their graphics standards software products: TEMPLATE, a 2-D or 3-D system for development of interactive graphics applications; FIGARO<sup>™</sup>, the first commercially available implementation of the PHIGS standard; and GKSGRAL<sup>™</sup>, a high-performance, full implementation of the GKS international standard.

### TEXAS INSTRUMENTS SEMICONDUCTOR GROUP

Booth 639

9901 South Wilcrest  
Houston, Texas 77099  
(713) 879-2209  
Ahmed Nawaz  
Graphics Marketing Manager

Texas Instruments presents "Tomorrow's Graphics Microcircuits Today." Included are the industry-leading TMS34010 Graphics System Processor, TMS320 family of Digital Signal Processors, AS888 Series Bit-Slice Processors and extensive development support tools. Peripherals include the TMS34061 Video System Controller, the TMS34070 Color Palette and a complete range of Multiport Video RAM devices.

### TEXAS MEMORY SYSTEMS, INC.

Booth 1141

9888 Bissonnet, #470  
Houston, Texas 77036  
(713) 771-8200  
Holly Frost  
President

## EXHIBITORS

The SAM-600 mass memory system will be displayed. The SAM-600 system has a single chassis capacity of 128 Mega-Bytes, a 100 MB/sec transfer rate and up to 12 I/O ports. SAM high speed interfaces are available for Floating Point Systems AP's and Gould-Sel, Perkin-Elmer and DEC computers. Also, high speed disk drives (9MB/sec) can be attached to the SAM system. The SAM-800 will be introduced soon with a chassis capacity of 512 MB and a rack capacity of 2048 MB.

### TEXNAI CGL

Booth 1561

2-1 Udagawa-cho, #620 Shibuya-ku

Tokyo, Japan 150

(03) 464-6927

Takeo Fukazawa

President

Texnai CGL will demonstrate their newly developed single board graphic display controller, FBX24 for 16-bit PC such as the IBM PC AT, NEC PC9801 series. FBX24 was originally developed as a personal frame buffer for full color and high-resolution printing use but is also available for TV and video use as it has both NTSC compatible and non-interlaced output.

Texnai CGL also will demonstrate their own Ray Tracing program running with FBX24 and IBM PC AT.

### TIME ARTS, INC.

Booth 1636

P.O. Box 6476, 3436 Mendocino Ave.

Santa Rosa, California 95406

(707) 576-7722

Stephen Oaks

Marketing Director

Time Arts will be introducing 3-D modeling software and EVA 2048 environment for visual arts at SIGGRAPH '86. This is a revolutionary approach to providing 2048-line resolution output without time consuming touch-up work to the on-screen image. What you see on a 512-line screen will be 2048-line resolution on digital output devices.

## EXHIBITORS

EVA 2048 will be shown in addition to the popular EVA and LUMENA software packages.

### TRANSFORMATIONS

Booth 383

5 Moulton St.  
Portland, Maine 04101  
(207) 774-1106  
Tom Bryand, President

A fast, easy-to-use 3-D workstation for designers, artists and illustrators will be exhibited. Anything you can change you can animate, including objects, light sources, viewing positions, shading and transparencies. Image complexity is limitless and any texture or image can be applied to 3-D objects. A system programming language is included.

### TRIDENT INTERNATIONAL, INC.

Booth 1441

3290 Progress Drive, Suite 155  
Orlando, Florida 32826  
(305) 282-3344  
Debra K. Day  
National Sales Manager

User Group Contact: Marketing Department

Trident International, Orlando, builds two sophisticated video/data projectors. The T-100 is computer compatible with built-in programmable RGB interface, intelligent remote control, internal operational help menu and superior contrast ratio. The T-200 has a fully integrated IBM compatible PC XT or optional AT "built-in." It is a "Computer Visual System."

### UNIRAS, INC.

Booth 1028

800 E. Campbell Road, #250  
Richardson, Texas 75019  
(214) 437-4881  
Jan McDaniel  
Marketing Services Director

User Group Contact: Jan McDaniel

## EXHIBITORS

UNIRAS markets and develops device independent, high-resolution color graphics software products for business, technical data presentation, and mapping and contouring applications. The company also develops vertical market software products for energy related industries. UNIRAS software products operate on a variety of computers and operating systems including the IBM PC AT and RT PC RT 32-bit mini computers and main-frame computers.

### UNIX/WORLD MAGAZINE

Booth 2047

444 Castro St.

Mountain View, California 94041

(415) 940-1500

Ardith Lowell

Marketing Manager

*UNIX/WORLD* magazine is directed to the multi-user, multi-tasking computer system market. Editorial content focuses on systems based on AT&T's UNIX system and its derivatives. Each issue defines and interprets major industry trends and offers new hardware/software reviews, market analysis, practical tutorials and industry news.

### VECTRIX CORPORATION

Booth 1836

2606 Branchwood Drive

Greensboro, North Carolina 27408

(919) 288-0520

Larry Addison

Director of Marketing

Vectrix manufactures high resolution graphics boards for the IBM PC XT, IBM PC AT and compatible computers. Our PEPE graphics boardset provides resolution of 1024 x 1024 viewable on a 19" 60Hz non-interlaced monitor. With line drawing speeds in excess of 20 million pixels per second, it is especially well-suited to CAD applications and is supported by numerous third-party CAD software packages.

## EXHIBITORS

### VERMONT MICROSYSTEMS INC

Booth 667

11 Tigan St.

Winooski, Vermont 05404

(802) 655-3880

Bill Ewer

Vice President Marketing

User Group Contact: Anita Charboneau

Sales Administrator

Vermont Microsystems will exhibit its full line of professional level PC color graphics display controllers and intelligent color monitors. The new Image Manager 1024 high-speed, high-resolution display processor for the IBM PC AT and PC RT will be featured. It is fully compatible with the most popular professional graphics applications, the IBM PGC and fully emulates the CGA. The new line of intelligent color monitors will be shown in conjunction with color graphics on the Apple MacIntosh.

### VERSACAD

Booth 1554

7372 Prince Drive

Huntington Beach, California 92647

(714) 847-9960

Jennifer Aurand

Product Manager

VersaCAD manufactures low-cost CAD software for microcomputers.

### VERSATEC, A XEROX COMPANY

Booth 1020

2710 Walsh Ave.

Santa Clara, California 95051

(408) 988-2800

Annette Stransky

Advertising Manager

User Group Contact: Dale Richmond

Manager, Plotter Market Development

## EXHIBITORS

Stop by the Versatec booth and see the widest range of electrostatic color and monochrome plotters, high speed rasterizers, software and supplies. Versatec also will announce an exciting new thermal printer, offering customers an even wider choice in narrow format hard copy.

### VERSICOLOR CORPORATION

Booth 675

2560 Mission College Blvd., Suite 106

Santa Clara, California 95050

(408) 727-6626

Richard Flores

High performance OEM hardware for graphics terminals and graphics workstations will be displayed. The hardware and software offer compatibility with major systems through VME BUS, SERIAL PARALLEL, DMA, GPIB, ETHERNET and SCSI interfaces. Other features include super interactive functions, hierarchical structure, bit-map raster operations and real time clipping functions.

### VERTEX INC.

Booth 1805

Foresight Bldg. 8F, 3-5-2 Iwamoto-Cho,  
Chiyoda-Ku

Tokyo, Japan 101

011-81-3-865-2441

Mr. Wako

International Sales Manager

The world's fastest and smallest graphic components and systems, based on the most advanced Japanese VLSI graphic technology, are here in the U.S., presented by Vertex Inc. We provide you with broad choices of VLSI graphic chips, graphic and system components, 3-D graphic terminals and 3-D work stations.

Vertex's VLSI technology is your best choice.

## EXHIBITORS

### VERTIGO SYSTEMS INTERNATIONAL INC.

Booth 443

221-119 W. Pender St.

Vancouver, British Columbia, Canada V6B 1S5

(604) 682-0966

Doug Harrison

Product Manager

User Group Contact: Rick Balabuck

Professional Animator

Vertigo Systems International Inc. is proud to introduce the V2000 Computer Graphic Animation System to the film and video broadcast industry. Specifically created for professional teleproduction artists, the V2000 integrates Vertigo's advanced hardware with powerful animation software to facilitate fast, economical production of high quality image sequences.

### VIDEO MONITORS INC.

Booth 729

3833 N. White Ave.

Eau Claire, Wisconsin 54703

(715) 834-7785

J. E. Carpentier

Vice President, Sales & Marketing

Video Monitors Inc. designs and builds monochrome and RGB color, high-speed raster scan video monitors for the OEM marketplace. Video Monitors Inc. pioneered the development of the high-speed raster scan monitor. Tens of thousands are now used throughout the world in CAD/CAM, AI and medical imaging applications.

### WASATCH COMPUTER TECHNOLOGY

Booth 1647

123 E. 2nd South

Salt Lake City, Utah 84111

(801) 575-8043

Mary Ware

Marketing Director

User Group Contact: Mary Ware

Wasatch Computer Technology is exhibiting their Wasatch PC 1024 Illustration System along with the following sub-systems: full color frame grab,

## EXHIBITORS

broadcast video interface and the recently introduced Wasatch PC 4096 Presentation Graphics System.

### WAVEFRONT TECHNOLOGIES

Booth 256

1421 State St.

Santa Barbara, California 93101

(805) 962-8117

Lauri Kelty

Director, Marketing Communications

Wavefront Technologies meets the need for 3-D computer graphics for animation and simulation emphasizing development of high-level computer graphics software integrated with state-of-the-art hardware and media recording equipment.

### WEST END FILM INC.

Booth 1854

1825 Q St. N.W.

Washington, D.C. 20009

(202) 232-7733

Karen D. Miller

User Group Contact: Karen D. Miller

Director of Sales

West End Film, Inc. will be exhibiting their ARTWORK Environment Software which includes: ARTWORK: 3-D design solids modeling with texture mapping and anti-aliasing; BRUSHWORK: paint package with frame-grabbing and unlimited number of brushes; CHARTWORK: business graphs and word charts PAGEWORK: desktop publishing with image scan capabilities; VIDEOWORKS: animation software.

### THE WINSTED CORPORATION

Booth 763

9801 James Circle

Minneapolis, Minnesota 55431

(612) 888-1957

Jerry Hoska

Vice-President

## EXHIBITORS

Winsted Corporation will display ergonomically engineered furniture consoles and work stations ideally suited for computer graphics and animation applications. Compact, space saving designs that position all components for operator efficiency and comfort. Height adjusting tables and adjustable keyboard and digitizer shelves allow for proper working height to minimize operator fatigue.

### XEPIX INCORPORATED

Booth 225

51 Lake St.

Nashua, New Hampshire 03060

(603) 881-8791 (800) 632-4577 (Sales Only)

xePIX Incorporated, a Nashua, N.H. manufacturer and marketer of M68020 (rated at 3 MIPS), UNIX™-based supermicros will introduce a new, ultra-high-resolution, bit mapped family of graphics systems known as the GATOR Graphic Series. Featuring GKS software, the systems are capable of resolution levels of one, two, four and eight million pixels, with 15" and 19" landscape mode monitors.

### XEROX CORPORATION

Booth 1420

Xerox Square-MS XRX2-05B

100 Clinton Ave.

Rochester, New York 14644

(716) 427-5400

Lisa McGinn

Xerox Corporation will demonstrate the latest technologies in artificial intelligence, professional workstations, personal computers, laser printers and color ink jet printers.

### XICON SYSTEMS INC.

Booth 116

444 Park Ave. S.

New York, New York 10016

(212) 874-5843

James B. Witker

## EXHIBITORS

XICON is a uniquely versatile, turnkey computer animation/special effects system. By following simple instructions, users can perform a great variety of functions, including skeleton animation, in-betweening and painting. Designed by an animator for maximum friendliness, XICON brings a quantum leap in productivity to broadcast, industrial and educational video.

### **XTAR ELECTRONICS, INC.**

Booth 1056

2262 Landmeier Road  
Elk Grove, Illinois 60007  
(312) 364-4111  
Stewart West  
Director of Marketing

XTAR will demonstrate its interactive real-time simulation/animation system based on its high speed graphics board for the IBM PC XT and AT and custom GMP and VSR chips.

### **ZENITH SYSTEMS & COMPONENTS GROUP**

Booth 1945

1000 Milwaukee Ave.  
Glenview, Illinois 60025  
(312) 391-7733  
Sim Dawson  
Product Manager, Video Displays

Zenith will exhibit custom OEM tubes, displays and monitors including their new Flat Tension Mask (FTM) Display — a breakthrough in color CRT technology providing a perfectly flat face, higher brightness, greater contrast and superior resolution.

### **ZIFF-DAVIS PUBLISHING COMPANY**

Booth 1669

One Park Ave.  
New York, New York 10016  
(212) 503-3500  
Linda Bunis  
Trade Show Manager

## EXHIBITORS

Ziff-Davis Publishing Company will display *Digital Review*, the independent guide to DEC computing, which provides the DEC buyer with in-depth product evaluations, news and case studies; and *PC Week*, the national newspaper of IBM standard microcomputing, which provides product review and focuses on how PCs are implemented in a variety of companies and organizations.

## PRODUCT INDEX

### **BOOTH      ARTIFICIAL INTELLIGENCE**

|      |                                         |
|------|-----------------------------------------|
| 845  | Addison-Wesley Publishing Company, Inc. |
| 1709 | Apollo Computer Inc.                    |
| 1956 | Barco-Industries, Inc.                  |
| 1450 | EIKONIX Corporation                     |
| 833  | Gould Imaging & Graphics Division       |
| 852  | Lazerus Productions                     |
| 154  | Meiko Incorporated                      |
| 1667 | Moniterm/Amtron                         |
| 413  | Silicon Graphics                        |
| 1436 | Symbolics Graphics Division             |
| 1420 | Xerox Corporation                       |

### **BOOTH      BUSINESS GRAPHICS SOFTWARE**

|      |                                                        |
|------|--------------------------------------------------------|
| 433  | Abel Image Research                                    |
| 954  | Advanced Technology Center                             |
| 1705 | Artronics                                              |
| 1064 | AZTEK, Inc.                                            |
| 1956 | Barco-Industries, Inc.                                 |
| 1645 | Robert Bosch Corporation                               |
| 1456 | ColorGraphics Systems, Inc.                            |
| 1246 | Computer Graphics Laboratories, Inc.                   |
| 372  | Computer Support Corporation                           |
| 450  | Cubicom Corporation                                    |
| 1920 | DALIM                                                  |
| 219  | DICOMED Corporation                                    |
| 1828 | General Parametrics Corporation                        |
| 1069 | Genigraphics Corporation                               |
| 1748 | Grafpoint                                              |
| 213  | Hewlett-Packard Company                                |
| 463  | Hitachi America, Ltd.                                  |
| 1847 | Island Graphics                                        |
| 1613 | KMW Systems Corporation/Auscom                         |
| 1050 | Kurta Corporation                                      |
| 1445 | Management Graphics, Inc. (MGI)                        |
| 1687 | Media Cybernetics, Inc.                                |
| 2008 | MERET, Inc.                                            |
| 1667 | Moniterm/Amtron                                        |
| 677  | National Technical Information Service                 |
| 254  | Pansophic Systems, Inc.                                |
| 233  | SlideTek Inc.                                          |
| 854  | SPSS Inc.                                              |
| 659  | Talaris Systems Inc.                                   |
| 1063 | TAT Graphics Group                                     |
| 813  | Template, The Software Division of Megatek Corporation |

## PRODUCT INDEX

### **BOOTH      BUSINESS GRAPHICS SOFTWARE**

- 1647      Wasatch Computer Technology  
1854      West End Film Inc.

### **BOOTH      CAD/CAM SYSTEMS**

- 433      Abel Image Research  
828      Adage, Inc.  
954      Advanced Technology Center  
1090      American Small Business  
Computers, Inc.  
625      AMF Logic Sciences, Inc.  
1709      Apollo Computer Inc.  
128      Autodesk, Inc.  
1956      Barco-Industries, Inc.  
1638      BNW, Inc.  
419      Digital Equipment Corporation  
891      Equitable Life Leasing Corporation  
1428      Evans & Sutherland  
1067      Focus Graphics, Inc.  
1039      General Electric Company, Silicon  
Systems Technology Department  
1748      Grafpoint  
1144      Graphic Resources Corporation/  
Graphic Systems Division  
213      Hewlett-Packard Company  
463      Hitachi America, Ltd.  
1017      Houston Instrument A Division of  
Ametek  
642      Imagraph Corporation  
1747      INI Computer Products  
236      Interactive Machines Incorporated  
1613      KMW Systems Corporation/Auscom  
1050      Kurta Corporation  
852      Lazerus Productions  
1559      MASSCOMP  
813      Megatek Corporation  
2008      MERET, Inc.  
1667      Moniterm/Amtron  
1841      NEC Information Systems, Inc.  
1459      New Media Graphics Corporation  
1013      Ramtek Corporation  
413      Silicon Graphics  
150      StereoGraphics Corporation  
1436      Symbolics Graphics Division  
1063      TAT Graphics Group  
147      Techexport, Inc.

## PRODUCT INDEX

### **BOOTH CAD/CAM SYSTEMS**

|      |                           |
|------|---------------------------|
| 1455 | Teledyne Post             |
| 1836 | Vectrix Corporation       |
| 1020 | Versatec, A Xerox Company |
| 225  | xePIX Incorporated        |

### **BOOTH CARTOGRAPHY**

|      |                                                  |
|------|--------------------------------------------------|
| 954  | Advanced Technology Center                       |
| 1956 | Barco-Industries, Inc.                           |
| 1490 | Decision Images, Inc.                            |
| 1450 | EIKONIX Corporation                              |
| 833  | Gould Imaging & Graphics Division                |
| 1748 | Grafpoint                                        |
| 236  | Interactive Machines Incorporated                |
| 2033 | International Imaging Systems (I <sup>2</sup> S) |
| 1050 | Kurta Corporation                                |
| 1667 | Moniterm/Amtron                                  |
| 677  | National Technical Information Service           |
| 254  | Pansophic Systems, Inc.                          |
| 150  | StereoGraphics Corporation                       |
| 1836 | Vectrix Corporation                              |

### **BOOTH COM DEVICES/FILM RECORDERS**

|      |                              |
|------|------------------------------|
| 1956 | Barco-Industries, Inc.       |
| 442  | CELCO                        |
| 219  | DICOMED Corporation          |
| 1925 | Diversified Technology, Inc. |
| 1067 | Focus Graphics, Inc.         |
| 1025 | Matrix Instruments           |
| 822  | Nicolet Computer Graphics    |
| 233  | SlideTek Inc.                |

### **BOOTH COMMUNICATIONS**

|      |                                   |
|------|-----------------------------------|
| 1645 | Robert Bosch Corporation          |
| 1920 | DALIM                             |
| 419  | Digital Equipment Corporation     |
| 1925 | Diversified Technology, Inc.      |
| 833  | Gould Imaging & Graphics Division |
| 1748 | Grafpoint                         |
| 1613 | KMW Systems Corporation/Auscom    |
| 2008 | MERET, Inc.                       |
| 1152 | Storage Concepts, Inc.            |

### **BOOTH COMPUTER ANIMATION SYSTEMS**

|      |                      |
|------|----------------------|
| 433  | Abel Image Research  |
| 828  | Adage, Inc.          |
| 1809 | ALIAS Research, Inc. |

## PRODUCT INDEX

| <b>BOOTH</b> | <b>COMPUTER ANIMATION SYSTEMS</b>                                  |
|--------------|--------------------------------------------------------------------|
| 1917         | Animatique Comparetti                                              |
| 1705         | Artronics                                                          |
| 1555         | AVAX Inc.                                                          |
| 1064         | AZTEK, Inc.                                                        |
| 1956         | Barco-Industries, Inc.                                             |
| 1645         | Robert Bosch Corporation                                           |
| 1815         | CAPTION                                                            |
| 1246         | Computer Graphics Laboratories, Inc.                               |
| 450          | Cubicom Corporation                                                |
| 1916         | DAIKIRI                                                            |
| 1920         | DALIM                                                              |
| 1654         | Floating Point Systems, Inc.                                       |
| 1039         | General Electric Company, Silicon<br>Systems Technology Department |
| 1069         | Genigraphics Corporation                                           |
| 1919         | Getris Images                                                      |
| 833          | Gould Imaging & Graphics Division                                  |
| 642          | Imagraph Corporation                                               |
| 236          | Interactive Machines Incorporated                                  |
| 1847         | Island Graphics                                                    |
| 852          | Lazerus Productions                                                |
| 1044         | Lyon Lamb Video Animation<br>Systems Inc.                          |
| 813          | Megatek Corporation                                                |
| 154          | Meiko Incorporated                                                 |
| 1667         | Moniterm/Amtron                                                    |
| 1360         | Neo-Visuals, Inc.                                                  |
| 836          | Quantel                                                            |
| 413          | Silicon Graphics                                                   |
| 1820         | Sogitec                                                            |
| 1152         | Storage Concepts, Inc.                                             |
| 1436         | Symbolics Graphics Division                                        |
| 1813         | TDI (Thomson Digital Image)                                        |
| 1815         | Telmat                                                             |
| 383          | Transformations                                                    |
| 443          | Vertigo Systems International Inc.                                 |
| 256          | Wavefront Technologies                                             |
| 1854         | West End Film Inc.                                                 |
| 116          | Xicon Systems Inc.                                                 |
| 1056         | XTAR Electronics, Inc.                                             |

| <b>BOOTH</b> | <b>CONSULTANTS</b> |
|--------------|--------------------|
|--------------|--------------------|

|      |                       |
|------|-----------------------|
| 1490 | Decision Images, Inc. |
| 2007 | Geoscan, Inc.         |

## PRODUCT INDEX

### BOOTH CONSULTANTS

|      |                                                            |
|------|------------------------------------------------------------|
| 1144 | Graphic Resources Corporation/<br>Graphic Systems Division |
| 147  | Techexport, Inc.                                           |
| 1056 | XTAR Electronics, Inc.                                     |

### BOOTH CORE STANDARD SOFTWARE

|     |                                                           |
|-----|-----------------------------------------------------------|
| 954 | Advanced Technology Center                                |
| 419 | Digital Equipment Corporation                             |
| 813 | Template, The Software Division of<br>Megatek Corporation |
| 639 | Texas Instruments Semiconductor<br>Group                  |

### BOOTH DESKTOP COMPUTERS

|      |                                                            |
|------|------------------------------------------------------------|
| 1709 | Apollo Computer                                            |
| 1956 | Barco-Industries, Inc.                                     |
| 419  | Digital Equipment Corporation                              |
| 1069 | Genigraphics Corporation                                   |
| 1748 | Grafpoint                                                  |
| 1144 | Graphic Resources Corporation/<br>Graphic Systems Division |
| 213  | Hewlett-Packard Company                                    |
| 2050 | KMS Advanced Products, Inc.                                |
| 1687 | Media Cybernetics, Inc.                                    |
| 1667 | Moniterm/Amtron                                            |
| 1841 | NEC Information Systems, Inc.                              |
| 1417 | Numonics Corporation                                       |
| 233  | SlideTek Inc.                                              |
| 225  | xePIX Incorporated                                         |
| 1945 | Zenith Systems & Components Group                          |
| 1420 | Xerox Corporation                                          |

### BOOTH DRAFTING SYSTEMS

|      |                                                            |
|------|------------------------------------------------------------|
| 954  | Advanced Technology Center                                 |
| 128  | Autodesk, Inc.                                             |
| 419  | Digital Equipment Corporation                              |
| 1748 | Grafpoint                                                  |
| 1144 | Graphic Resources Corporation/<br>Graphic Systems Division |
| 463  | Hitachi America, Ltd.                                      |
| 1017 | Houston Instrument A Division of<br>Ametek                 |
| 1390 | Koh-I-Noor Rapidograph, Inc.                               |
| 1667 | Moniterm/Amtron                                            |

## PRODUCT INDEX

### **BOOTH      ELECTRICAL/ELECTRONIC SYSTEMS**

|      |                                                            |
|------|------------------------------------------------------------|
| 1423 | DYNAIR Electronics, Inc.                                   |
| 1144 | Graphic Resources Corporation/<br>Graphic Systems Division |
| 1825 | Inmos Corporation                                          |
| 852  | Lazerus Productions                                        |
| 1667 | Moniterm/Amtron                                            |
| 639  | Texas Instruments Semiconductor<br>Group                   |

### **BOOTH      ENGINEERING WORKSTATIONS**

|      |                                                                    |
|------|--------------------------------------------------------------------|
| 828  | Adage, Inc.                                                        |
| 1709 | Apollo Computer                                                    |
| 128  | Autodesk, Inc.                                                     |
| 1490 | Decision Images, Inc.                                              |
| 419  | Digital Equipment Corporation                                      |
| 1039 | General Electric Company, Silicon<br>Systems Technology Department |
| 1748 | Grafpoint                                                          |
| 213  | Hewlett-Packard Company                                            |
| 1017 | Houston Instrument A Division of<br>Ametek                         |
| 642  | Imagraph Corporation                                               |
| 236  | Interactive Machines Incorporated                                  |
| 1556 | I.S.G. Technologies Inc.                                           |
| 852  | Lazerus Productions                                                |
| 228  | Lundy Electronics & Systems, Inc.                                  |
| 1559 | MASSCOMP                                                           |
| 813  | Megatek Corporation                                                |
| 1667 | Moniterm/Amtron                                                    |
| 1841 | NEC Information Systems, Inc.                                      |
| 1459 | New Media Graphics Corporation                                     |
| 1641 | PERICOM Inc.                                                       |
| 1013 | Ramtek Corporation                                                 |
| 872  | Saber Technology Corporation                                       |
| 413  | Silicon Graphics                                                   |
| 1063 | TAT Graphics Group                                                 |
| 675  | Versicolor Corporation                                             |
| 1805 | Vertex Inc.                                                        |
| 225  | xePIX Incorporated                                                 |
| 1945 | Zenith Systems & Components Group                                  |

### **BOOTH      ERGONOMICS**

|      |                               |
|------|-------------------------------|
| 828  | Adage, Inc.                   |
| 419  | Digital Equipment Corporation |
| 1069 | Genigraphics Corporation      |

## PRODUCT INDEX

### **BOOTH      ERGONOMICS**

|      |                           |
|------|---------------------------|
| 2009 | Karl Gutmann Incorporated |
| 1050 | Kurta Corporation         |
| 852  | Lazerus Productions       |
| 1667 | Moniterm/Amtron           |
| 437  | OCLI                      |
| 763  | The Winsted Corporation   |

### **BOOTH      ERGONOMICS — FURNITURE**

|      |                           |
|------|---------------------------|
| 828  | Adage, Inc.               |
| 2009 | Karl Gutmann Incorporated |
| 437  | OCLI                      |
| 763  | The Winsted Corporation   |

### **BOOTH      ERGONOMICS — HARDWARE**

|      |                                 |
|------|---------------------------------|
| 828  | Adage, Inc.                     |
| 1256 | Ikegami Electronics (USA), Inc. |
| 1050 | Kurta Corporation               |
| 852  | Lazerus Productions             |
| 1667 | Moniterm/Amtron                 |

### **BOOTH      ERGONOMICS — WORKSTATION FURNITURE**

|      |                                 |
|------|---------------------------------|
| 1256 | Ikegami Electronics (USA), Inc. |
| 828  | Adage, Inc.                     |
| 1956 | Barco-Industries, Inc.          |
| 419  | Digital Equipment Corporation   |
| 1069 | Genigraphics Corporation        |
| 2009 | Karl Gutmann Incorporated       |
| 852  | Lazerus Productions             |
| 1667 | Moniterm/Amtron                 |
| 763  | The Winsted Corporation         |

### **BOOTH      GKS SOFTWARE**

|      |                                                           |
|------|-----------------------------------------------------------|
| 954  | Advanced Technology Center                                |
| 419  | Digital Equipment Corporation                             |
| 213  | Hewlett-Packard Company                                   |
| 1050 | Kurta Corporation                                         |
| 839  | Nova Graphics International                               |
| 254  | Pansophic Systems, Inc.                                   |
| 1013 | Ramtek Corporation                                        |
| 1063 | TAT Graphics Group                                        |
| 813  | Template, The Software Division of<br>Megatek Corporation |
| 225  | xePIX Incorporated                                        |

### **BOOTH      GRAPHIC DIGITIZERS**

|     |             |
|-----|-------------|
| 828 | Adage, Inc. |
|-----|-------------|

## PRODUCT INDEX

### BOOTH GRAPHIC DIGITIZERS

|      |                                                            |
|------|------------------------------------------------------------|
| 1845 | Ampex Corporation                                          |
| 1705 | Artronics                                                  |
| 1456 | ColorGraphics Systems, Inc.                                |
| 1920 | DALIM                                                      |
| 1066 | Data Translation, Inc.                                     |
| 1450 | EIKONIX Corporation                                        |
| 1146 | Elographics, Inc.                                          |
| 1067 | Focus Graphics, Inc.                                       |
| 1144 | Graphic Resources Corporation/<br>Graphic Systems Division |
| 122  | GTCO Corporation                                           |
| 463  | Hitachi America, Ltd.                                      |
| 1017 | Houston Instrument A Division of<br>Ametek                 |
| 1751 | Inovion Corporation                                        |
| 236  | Interactive Machines Incorporated                          |
| 1067 | Kontron Electronics, Inc.                                  |
| 1050 | Kurta Corporation                                          |
| 1417 | Numonics Corporation                                       |
| 1641 | PERICOM Inc.                                               |
| 1672 | Polhemus Navigation Sciences                               |
| 628  | Science Accessories Corporation                            |
| 1443 | Scriptel Corporation                                       |
| 819  | Seiko Instruments USA Inc.                                 |
| 233  | SlideTek Inc.                                              |
| 1413 | Summagraphics Corporation                                  |
| 147  | Techexport, Inc.                                           |

### BOOTH GRAPHIC DISPLAYS

|      |                                                                    |
|------|--------------------------------------------------------------------|
| 433  | Abel Image Research                                                |
| 828  | Adage, Inc.                                                        |
| 625  | AMF Logic Sciences, Inc.                                           |
| 1956 | Barco-Industries, Inc.                                             |
| 1638 | BNW, Inc.                                                          |
| 1645 | Robert Bosch Corporation                                           |
| 1456 | ColorGraphics Systems, Inc.                                        |
| 1059 | Daikin Industries, Ltd.                                            |
| 419  | Digital Equipment Corporation                                      |
| 1632 | Electrohome Limited                                                |
| 1039 | General Electric Company, Silicon<br>Systems Technology Department |
| 1828 | General Parametrics Corporation                                    |
| 1425 | GIGATEK Limited                                                    |
| 1748 | Grafpoint                                                          |
| 1656 | GraphOn Corporation                                                |

## PRODUCT INDEX

### BOOTH

### GRAPHIC DISPLAYS

|      |                                                  |
|------|--------------------------------------------------|
| 213  | Hewlett-Packard Company                          |
| 1256 | Ikegami Electronics (USA), Inc.                  |
| 642  | Imagraph Corporation                             |
| 1747 | INI Computer Products                            |
| 1036 | Intecolor                                        |
| 236  | Interactive Machines Incorporated                |
| 2033 | International Imaging Systems (I <sup>2</sup> S) |
| 852  | Lazerus Productions                              |
| 228  | Lundy Electronics & Systems, Inc.                |
| 1253 | Matrox Electronic Systems Ltd.                   |
| 813  | Megatek Corporation                              |
| 2008 | MERET, Inc.                                      |
| 1032 | Metheus Corporation                              |
| 1659 | Mitsubishi Electronics America, Inc.             |
| 1667 | Moniterm/Amtron                                  |
| 1052 | Monitronix Corporation                           |
| 428  | Number Nine Computer                             |
| 645  | Parallax Graphics, Inc.                          |
| 1641 | PERICOM Inc.                                     |
| 250  | Peritek Corporation                              |
| 1013 | Ramtek Corporation                               |
| 859  | Raster Technologies                              |
| 2039 | Sampo Corporation of America                     |
| 819  | Seiko Instruments USA Inc.                       |
| 233  | SlideTek Inc.                                    |
| 150  | Stereographics Corporation                       |
| 650  | Superset, Inc.                                   |
| 1063 | TAT Graphics Group                               |
| 147  | Techexport, Inc.                                 |
| 1561 | Texnai CGL                                       |
| 225  | xePIX Incorporated                               |
| 1945 | Zenith Systems & Components Group                |

### BOOTH

### GRAPHICS AIDED DRAFTING

|      |                                            |
|------|--------------------------------------------|
| 828  | Adage, Inc.                                |
| 954  | Advanced Technology Center                 |
| 1638 | BNW, Inc.                                  |
| 1920 | DALIM                                      |
| 419  | Digital Equipment Corporation              |
| 463  | Hitachi America, Ltd.                      |
| 1017 | Houston Instrument A Division of<br>Ametek |
| 642  | Imagraph Corporation                       |
| 236  | Interactive Machines Incorporated          |
| 1667 | Moniterm/Amtron                            |

## PRODUCT INDEX

### **BOOTH      GRAPHICS AIDED DRAFTING**

- 1413      Summagraphics Corporation
- 1063      TAT Graphics Group

### **BOOTH      GRAPHICS ARTS SYSTEMS**

- 433      Abel Image Research
- 1809      ALIAS Research Inc.
- 1845      Ampex Corporation
- 1705      Artronics
- 1555      AVAX Inc.
- 1064      AZTEK, Inc.
- 1638      BNW, Inc.
- 1645      Robert Bosch Corporation
- 1815      CAPTION
- 1456      ColorGraphics Systems, Inc.
- 1246      Computer Graphics Laboratories, Inc.
- 450      Cubicomp Corporation
- 1916      DAIKIRI
- 1920      DALIM
- 219      DICOMED Corporation
- 1617      Dubner Computer Systems
- 1067      Focus Graphics, Inc.
- 1069      Genigraphics Corporation
- 1919      Getris Images
- 1819      GRACE
- 463      Hitachi America, Ltd.
- 1017      Houston Instrument A Division of  
Ametek
- 642      Imagraph Corporation
- 1747      INI Computer Products
- 1751      Inovion Corporation
- 236      Interactive Machines Incorporated
- 1847      Island Graphics
- 1050      Kurta Corporation
- 852      Lazerus Productions
- 1445      Management Graphics, Inc. (MGI)
- 1687      Media Cybernetics, Inc.
- 813      Megatek Corporation
- 2008      MERET, Inc.
- 1667      Moniterm/Amtron
- 1360      Neo-Visuals, Inc.
- 836      Quantel
- 413      Silicon Graphics
- 233      SlideTek Inc.
- 650      Superset, Inc.
- 1063      TAT Graphics Group

## PRODUCT INDEX

### **BOOTH      GRAPHICS ARTS SYSTEMS**

|      |                             |
|------|-----------------------------|
| 1815 | Telmat                      |
| 1561 | Texnai CGL                  |
| 383  | Transformations             |
| 1836 | Vectrix Corporation         |
| 1647 | Wasatch Computer Technology |
| 256  | Wavefront Technologies      |
| 1854 | West End Film Inc.          |
| 225  | xePIX Incorporated          |
| 116  | Xicon Systems Inc.          |

### **BOOTH      HARD COPY; PHOTOGRAPHS**

|      |                             |
|------|-----------------------------|
| 625  | AMF Logic Sciences, Inc.    |
| 1705 | Artronics                   |
| 1067 | Focus Graphics, Inc.        |
| 1751 | Inovion Corporation         |
| 2050 | KMS Advanced Products, Inc. |
| 1067 | Kontron Electronics, Inc.   |
| 1025 | Matrix Instruments          |
| 2049 | NISE, Inc.                  |
| 147  | Techexport, Inc.            |

### **BOOTH      HARD COPY; SLIDES**

|      |                                 |
|------|---------------------------------|
| 625  | AMF Logic Sciences, Inc.        |
| 1705 | Artronics                       |
| 1064 | AZTEK, Inc.                     |
| 442  | CELCO                           |
| 1456 | ColorGraphics Systems, Inc.     |
| 219  | DICOMED Corporation             |
| 1067 | Focus Graphics, Inc.            |
| 1828 | General Parametrics Corporation |
| 1069 | Genigraphics Corporation        |
| 213  | Hewlett-Packard Company         |
| 1751 | Inovion Corporation             |
| 2050 | KMS Advanced Products, Inc.     |
| 1067 | Kontron Electronics, Inc.       |
| 1445 | Management Graphics, Inc. (MGI) |
| 2017 | Mangum Sickles Industries, Inc. |
| 1025 | Matrix Instruments              |
| 2049 | NISE, Inc.                      |
| 233  | SlideTek Inc.                   |
| 147  | Techexport, Inc.                |

## PRODUCT INDEX

### BOOTH      HARD COPY: VIDEO PAPER

|      |                                      |
|------|--------------------------------------|
| 1705 | Artronics                            |
| 1916 | DAIKIRI                              |
| 1067 | Focus Graphics, Inc.                 |
| 1828 | General Parametrics Corporation      |
| 742  | Graftel, Inc.                        |
| 1751 | Inovion Corporation                  |
| 2050 | KMS Advanced Products, Inc.          |
| 1851 | Mitsubishi International Corporation |
| 1013 | Ramtek Corporation                   |
| 819  | Seiko Instruments USA Inc.           |
| 233  | SlideTek Inc.                        |
| 1020 | Versatec, A Xerox Company            |

### BOOTH      HIGH PERFORMANCE GRAPHICS PROCESSORS

|      |                                                                    |
|------|--------------------------------------------------------------------|
| 433  | Abel Image Research                                                |
| 828  | Adage, Inc.                                                        |
| 825  | Advanced Electronics Design, Inc.                                  |
| 625  | AMF Logic Sciences, Inc.                                           |
| 1709 | Apollo Computer Inc.                                               |
| 1705 | Artronics                                                          |
| 1956 | Barco-Industries, Inc.                                             |
| 1645 | Robert Bosch Corporation                                           |
| 635  | Cray Research, Inc.                                                |
| 1059 | Daikin Industries, Ltd.                                            |
| 1066 | Data Translation, Inc.                                             |
| 419  | Digital Equipment Corporation                                      |
| 1654 | Floating Point Systems, Inc.                                       |
| 1039 | General Electric Company, Silicon<br>Systems Technology Department |
| 2007 | Geoscan, Inc.                                                      |
| 833  | Gould Imaging & Graphics Division                                  |
| 213  | Hewlett-Packard Company                                            |
| 642  | Imagraph Corporation                                               |
| 1747 | INI Computer Products                                              |
| 1825 | Inmos Corporation                                                  |
| 236  | Interactive Machines Incorporated                                  |
| 2033 | International Imaging Systems (I <sup>2</sup> S)                   |
| 1556 | I.S.G. Technologies Inc.                                           |
| 1613 | KMW Systems Corporation/Auscom                                     |
| 852  | Lazerus Productions                                                |

## PRODUCT INDEX

### **BOOTH      HIGH PERFORMANCE GRAPHICS PROCESSORS**

|      |                                       |
|------|---------------------------------------|
| 1559 | MASSCOMP                              |
| 1025 | Matrix Instruments                    |
| 1253 | Matrox Electronic Systems Ltd.        |
| 944  | Megascan Technology, Inc.             |
| 154  | Meiko Incorporated                    |
| 1032 | Metheus Corporation                   |
| 2005 | Microfield Graphics, Inc.             |
| 1667 | Moniterm/Amtron                       |
| 1459 | New Media Graphics Corporation        |
| 428  | Number Nine Computer                  |
| 1239 | Omnicom Graphics Corporation          |
| 645  | Parallax Graphics, Inc.               |
| 250  | Peritek Corporation                   |
| 2006 | Pixelworks                            |
| 1013 | Ramtek Corporation                    |
| 872  | Saber Technology Corporation          |
| 413  | Silicon Graphics                      |
| 233  | SlideTek Inc.                         |
| 650  | Superset, Inc.                        |
| 1436 | Symbolics Graphics Division           |
| 950  | Tech-Source Inc.                      |
| 639  | Texas Instruments Semiconductor Group |
| 1836 | Vectrix Corporation                   |
| 675  | Versicolor Corporation                |
| 1056 | Xtar Electronics, Inc.                |

### **BOOTH      HIGH RESOLUTION GRAPHIC DISPLAY SYSTEMS**

|      |                                   |
|------|-----------------------------------|
| 433  | Abel Image Research               |
| 828  | Adage, Inc.                       |
| 825  | Advanced Electronics Design, Inc. |
| 625  | AMF Logic Sciences, Inc.          |
| 1709 | Apollo Computer Inc.              |
| 1705 | Artronics                         |
| 1956 | Barco-Industries, Inc.            |
| 1638 | BNW, Inc.                         |
| 1456 | ColorGraphics Systems, Inc.       |
| 1059 | Daikin Industries, Ltd.           |
| 1066 | Data Translation, Inc.            |
| 419  | Digital Equipment Corporation     |
| 1617 | Dubner Computer Systems           |
| 1428 | Evans & Sutherland                |
| 1067 | Focus Graphics, Inc.              |

## PRODUCT INDEX

### BOOTH HIGH RESOLUTION GRAPHIC DISPLAY SYSTEMS

|      |                                                                 |
|------|-----------------------------------------------------------------|
| 1039 | General Electric Company, Silicon Systems Technology Department |
| 833  | Gould Imaging & Graphics Division                               |
| 1748 | Grafpoint                                                       |
| 213  | Hewlett-Packard Company                                         |
| 463  | Hitachi America, Ltd.                                           |
| 1256 | Ikegami Electronics (USA), Inc.                                 |
| 642  | Imagraph Corporation                                            |
| 445  | Inflight Services, Inc.                                         |
| 1747 | INI Computer Products                                           |
| 1036 | Intecolor                                                       |
| 236  | Interactive Machines Incorporated                               |
| 2033 | International Imaging Systems (I <sup>2</sup> S)                |
| 1556 | I.S.G. Technologies Inc.                                        |
| 1630 | Kloss Video Corporation                                         |
| 2050 | KMS Advanced Products, Inc.                                     |
| 1067 | Kontron Electronics, Inc.                                       |
| 852  | Lazerus Productions                                             |
| 228  | Lundy Electronics & Systems, Inc.                               |
| 1445 | Management Graphics, Inc. (MGI)                                 |
| 1559 | MASSCOMP                                                        |
| 944  | Megascan Technology, Inc.                                       |
| 813  | Megatek Corporation                                             |
| 154  | Meiko Incorporated                                              |
| 2008 | MERET, Inc.                                                     |
| 1032 | Metheus Corporation                                             |
| 2005 | Microfield Graphics, Inc.                                       |
| 1659 | Mitsubishi Electronics America, Inc.                            |
| 1667 | Moniterm/Amtron                                                 |
| 1841 | NEC Information Systems, Inc.                                   |
| 1459 | New Media Graphics Corporation                                  |
| 428  | Number Nine Computer                                            |
| 1239 | Omnicom Graphics Corporation                                    |
| 250  | Peritek Corporation                                             |
| 252  | Quantum Data Inc.                                               |
| 1013 | Ramtek Corporation                                              |
| 859  | Raster Technologies                                             |
| 872  | Saber Technology Corporation                                    |
| 819  | Seiko Instruments USA Inc.                                      |
| 233  | SlideTek Inc.                                                   |
| 150  | StereoGraphics Corporation                                      |
| 650  | Superset, Inc.                                                  |
| 1436 | Symbolics Graphics Division                                     |
| 1063 | TAT Graphics Group                                              |

## PRODUCT INDEX

### **BOOTH      HIGH RESOLUTION GRAPHIC DISPLAY SYSTEMS**

|      |                             |
|------|-----------------------------|
| 147  | Techexport, Inc.            |
| 1561 | Texnai CGL                  |
| 1441 | Trident International, Inc. |
| 1836 | Vectrix Corporation         |
| 675  | Versicolor Corporation      |
| 256  | Wavefront Technologies      |
| 1854 | West End Film Inc.          |
| 225  | xePIX Incorporated          |

### **BOOTH      IMAGE PROCESSING**

|      |                                                  |
|------|--------------------------------------------------|
| 433  | Abel Image Research                              |
| 828  | Adage, Inc.                                      |
| 954  | Advanced Technology Center                       |
| 1705 | Artronics                                        |
| 1956 | Barco-Industries, Inc.                           |
| 1638 | BNW, Inc.                                        |
| 635  | Cray Research, Inc.                              |
| 1949 | CSPI                                             |
| 1066 | Data Translation, Inc.                           |
| 1490 | Decision Images, Inc.                            |
| 419  | Digital Equipment Corporation                    |
| 1925 | Diversified Technology, Inc.                     |
| 1450 | EIKONIX Corporation                              |
| 891  | Equitable Life Leasing Corporation               |
| 1654 | Floating Point Systems, Inc.                     |
| 1067 | Focus Graphics, Inc.                             |
| 1069 | Genigraphics Corporation                         |
| 1919 | Getris Images                                    |
| 833  | Gould Imaging & Graphics Division                |
| 642  | Imagraph Corporation                             |
| 1751 | Inovion Corporation                              |
| 2033 | International Imaging Systems (I <sup>2</sup> S) |
| 1556 | I.S.G. Technologies Inc.                         |
| 1847 | Island Graphics                                  |
| 1613 | KMW Systems Corporation/Auscom                   |
| 1067 | Kontron Electronics, Inc.                        |
| 852  | Lazerus Productions                              |
| 1559 | MASSCOMP                                         |
| 1253 | Matrox Electronic Systems Ltd.                   |
| 1687 | Media Cybernetics, Inc.                          |
| 1329 | Mercury Computer Systems, Inc.                   |
| 2008 | MERET, Inc.                                      |
| 1032 | Metheus Corporation                              |

## PRODUCT INDEX

### BOOTH IMAGE PROCESSING

|      |                                       |
|------|---------------------------------------|
| 1667 | Moniterm/Amtron                       |
| 428  | Number Nine Computer                  |
| 645  | Parallax Graphics, Inc.               |
| 1046 | Perceptics Corporation                |
| 1013 | Ramtek Corporation                    |
| 859  | Raster Technologies                   |
| 150  | StereoGraphics Corporation            |
| 1152 | Storage Concepts, Inc.                |
| 650  | Superset, Inc.                        |
| 1436 | Symbolics Graphics Division           |
| 147  | Techexport, Inc.                      |
| 639  | Texas Instruments Semiconductor Group |
| 1561 | Texnai CGL                            |
| 1836 | Vectrix Corporation                   |
| 225  | xePIX Incorporated                    |

### BOOTH INTERACTIVE GRAPHICS TERMINALS

|      |                                                                 |
|------|-----------------------------------------------------------------|
| 433  | Abel Image Research                                             |
| 828  | Adage, Inc.                                                     |
| 825  | Advanced Electronics Design, Inc.                               |
| 1956 | Barco-Industries, Inc.                                          |
| 1815 | CAPTION                                                         |
| 1456 | ColorGraphics Systems, Inc.                                     |
| 1059 | Daikin Industries, Ltd.                                         |
| 419  | Digital Equipment Corporation                                   |
| 1428 | Evans & Sutherland                                              |
| 1039 | General Electric Company, Silicon Systems Technology Department |
| 1748 | Grafpoint                                                       |
| 1656 | GraphOn Corporation                                             |
| 213  | Hewlett-Packard Company                                         |
| 775  | Human Designed Systems, Inc.                                    |
| 1036 | Intercolor                                                      |
| 236  | Interactive Machines Incorporated                               |
| 2033 | International Imaging Systems (I <sup>2</sup> S)                |
| 1067 | Kontron Electronics, Inc.                                       |
| 852  | Lazerus Productions                                             |
| 364  | Lear Siegler, Inc.                                              |
| 228  | Lundy Electronics & Systems, Inc.                               |
| 1559 | MASSCOMP                                                        |
| 1687 | Media Cybernetics, Inc.                                         |
| 813  | Megatek Corporation                                             |
| 1032 | Metheus Corporation                                             |

## PRODUCT INDEX

### BOOTH INTERACTIVE GRAPHICS TERMINALS

|      |                                   |
|------|-----------------------------------|
| 1667 | Moniterm/Amtron                   |
| 1841 | NEC Information Systems, Inc.     |
| 1641 | PERICOM Inc.                      |
| 250  | Peritek Corporation               |
| 1013 | Ramtek Corporation                |
| 859  | Raster Technologies               |
| 819  | Seiko Instruments USA Inc.        |
| 413  | Silicon Graphics                  |
| 233  | SlideTek Inc.                     |
| 1063 | TAT Graphics Group                |
| 147  | Techexport, Inc.                  |
| 1815 | Telmat                            |
| 675  | Versicolor Corporation            |
| 1056 | XTAR Electronics, Inc.            |
| 1945 | Zenith Systems & Components Group |

### BOOTH LOW COST GRAPHICS SYSTEMS

|      |                                            |
|------|--------------------------------------------|
| 433  | Abel Image Research                        |
| 828  | Adage, Inc.                                |
| 625  | AMF Logic Sciences, Inc.                   |
| 1709 | Apollo Computer Inc.                       |
| 1555 | AVAX Inc.                                  |
| 1064 | AZTEK, Inc.                                |
| 1956 | Barco-Industries, Inc.                     |
| 1638 | BNW, Inc.                                  |
| 1456 | ColorGraphics Systems, Inc.                |
| 1246 | Computer Graphics Laboratories, Inc.       |
| 450  | Cubicomp Corporation                       |
| 1920 | DALIM                                      |
| 1066 | Data Translation, Inc.                     |
| 219  | DICOMED Corporation                        |
| 419  | Digital Equipment Corporation              |
| 1617 | Dubner Computer Systems                    |
| 1828 | General Parametrics Corporation            |
| 1069 | Genigraphics Corporation                   |
| 2007 | Geoscan, Inc.                              |
| 1919 | Getris Images                              |
| 213  | Hewlett-Packard Company                    |
| 463  | Hitachi America, Ltd.                      |
| 1017 | Houston Instrument A Division of<br>Ametek |
| 642  | Imagraph Corporation                       |
| 1825 | Inmos Corporation                          |
| 1751 | Inovion Corporation                        |

## PRODUCT INDEX

### BOOTH      LOW COST GRAPHICS SYSTEMS

|      |                                                  |
|------|--------------------------------------------------|
| 1036 | Intecolor                                        |
| 2033 | International Imaging Systems (I <sup>2</sup> S) |
| 1613 | KMW Systems Corporation/Auscom                   |
| 1050 | Kurta Corporation                                |
| 228  | Lundy Electronics & Systems, Inc.                |
| 1445 | Management Graphics, Inc. (MGI)                  |
| 1687 | Media Cybernetics, Inc.                          |
| 813  | Megatek Corporation                              |
| 2008 | MERET, Inc.                                      |
| 1032 | Metheus Corporation                              |
| 1659 | Mitsubishi Electronics America, Inc.             |
| 1667 | Moniterm/Amtron                                  |
| 1841 | NEC Information Systems, Inc.                    |
| 1459 | New Media Graphics Corporation                   |
| 428  | Number Nine Computer                             |
| 1239 | Omnicom Graphics Corporation                     |
| 645  | Parallax Graphics, Inc.                          |
| 250  | Peritek Corporation                              |
| 1013 | Ramtek Corporation                               |
| 859  | Raster Technologies                              |
| 819  | Seiko Instruments USA Inc.                       |
| 233  | SlideTek Inc.                                    |
| 1063 | TAT Graphics Group                               |
| 147  | Techexport, Inc.                                 |
| 1561 | Texnai CGL                                       |
| 1836 | Vectrix Corporation                              |
| 675  | Versicolor Corporation                           |
| 1647 | Wasatch Computer Technology                      |
| 1854 | West End Film Inc.                               |
| 225  | xePIX Incorporated                               |
| 1056 | XTAR Electronics, Inc.                           |

### BOOTH      MANUFACTURING SYSTEMS

|      |                            |
|------|----------------------------|
| 954  | Advanced Technology Center |
| 1036 | Intecolor                  |

### BOOTH      MECHANICAL DESIGN SYSTEMS

|      |                                                                    |
|------|--------------------------------------------------------------------|
| 828  | Adage, Inc.                                                        |
| 954  | Advanced Technology Center                                         |
| 419  | Digital Equipment Corporation                                      |
| 1039 | General Electric Company, Silicon<br>Systems Technology Department |
| 213  | Hewlett-Packard Company                                            |
| 463  | Hitachi America, Ltd.                                              |

## PRODUCT INDEX

### **BOOTH      MECHANICAL DESIGN SYSTEMS**

|      |                                            |
|------|--------------------------------------------|
| 1017 | Houston Instrument A Division of<br>Ametek |
| 642  | Imagraph Corporation                       |
| 236  | Interactive Machines Incorporated          |
| 228  | Lundy Electronics & Systems, Inc.          |
| 813  | Megatek Corporation                        |
| 1667 | Moniterm/Amtron                            |
| 413  | Silicon Graphics                           |
| 150  | StereoGraphics Corporation                 |

### **BOOTH      MONITORS**

|      |                                      |
|------|--------------------------------------|
| 1956 | Barco-Industries, Inc.               |
| 419  | Digital Equipment Corporation        |
| 1632 | Electrohome Limited                  |
| 1425 | GIGATEK Limited                      |
| 213  | Hewlett-Packard Company              |
| 463  | Hitachi America, Ltd.                |
| 1256 | Ikegami Electronics (USA), Inc.      |
| 944  | Megascan Technology, Inc.            |
| 1032 | Metheus Corporation                  |
| 1659 | Mitsubishi Electronics America, Inc. |
| 1667 | Moniterm/Amtron                      |
| 1052 | Monitronix Corporation               |
| 1841 | NEC Information Systems, Inc.        |
| 250  | Peritek Corporation                  |
| 1620 | Princeton Graphic Systems            |
| 2039 | Sampo Corporation of America         |
| 150  | StereoGraphics Corporation           |
| 1063 | TAT Graphics Group                   |
| 950  | Tech-Source Inc.                     |
| 1945 | Zenith Systems & Components Group    |

### **BOOTH      NON GLARE COATING/MATERIALS**

|     |      |
|-----|------|
| 437 | OCLI |
|-----|------|

### **BOOTH      NUMERICAL CONTROL (NC, CNC, DNC)**

|      |                   |
|------|-------------------|
| 1825 | Inmos Corporation |
|------|-------------------|

### **BOOTH      PIPING SYSTEMS**

|      |                              |
|------|------------------------------|
| 1672 | Polhemus Navigation Sciences |
|------|------------------------------|

### **BOOTH      PLOTTERS**

|     |                                                                    |
|-----|--------------------------------------------------------------------|
| 632 | Advanced Color Technology, A<br>Subsidiary of Polaroid Corporation |
| 419 | Digital Equipment Corporation                                      |
| 891 | Equitable Life Leasing Corporation                                 |

## PRODUCT INDEX

### BOOTH PLOTTERS

|      |                                                            |
|------|------------------------------------------------------------|
| 1144 | Graphic Resources Corporation/<br>Graphic Systems Division |
| 213  | Hewlett-Packard Company                                    |
| 1017 | Houston Instrument A Division of<br>Ametek                 |
| 1659 | Mitsubishi Electronics America, Inc.                       |
| 822  | Nicolet Computer Graphics                                  |
| 1417 | Numonics Corporation                                       |
| 659  | Talaris Systems Inc.                                       |
| 1455 | Teledyne Post                                              |
| 1020 | Versatec, A Xerox Company                                  |

### BOOTH PRINTERS

|      |                                                                    |
|------|--------------------------------------------------------------------|
| 632  | Advanced Color Technology, A<br>Subsidiary of Polaroid Corporation |
| 138  | AST Research, Inc.                                                 |
| 419  | Digital Equipment Corporation                                      |
| 891  | Equitable Life Leasing Corporation                                 |
| 1069 | Genigraphics Corporation                                           |
| 213  | Hewlett-Packard Company                                            |
| 245  | IMAGEN Corporation                                                 |
| 2050 | KMS Advanced Products, Inc.                                        |
| 1445 | Management Graphics, Inc. (MGI)                                    |
| 1025 | Matrix Instruments                                                 |
| 1659 | Mitsubishi Electronics America, Inc.                               |
| 1841 | NEC Information Systems, Inc.                                      |
| 1641 | PERICOM Inc.                                                       |
| 868  | QMS, Inc.                                                          |
| 819  | Seiko Instruments USA Inc.                                         |
| 659  | Talaris Systems Inc.                                               |
| 1020 | Versatec, A Xerox Company                                          |
| 1420 | Xerox Corporation                                                  |

### BOOTH PROJECTORS

|      |                         |
|------|-------------------------|
| 1632 | Electrohome Limited     |
| 1630 | Kloss Video Corporation |
| 852  | Lazerus Productions     |
| 2049 | NISE, Inc.              |

### BOOTH PUBLICATIONS

|      |                                        |
|------|----------------------------------------|
| 1461 | Academic Press Inc.                    |
| 845  | Addison-Wesley Publishing Company      |
| 952  | AV Video/Montage Publishing            |
| 1651 | Computer-Aided Engineering<br>Magazine |

## PRODUCT INDEX

### BOOTH PUBLICATIONS

|      |                                       |
|------|---------------------------------------|
| 2038 | Computer Graphics Today               |
| 2026 | Computer Graphics World               |
| 2016 | Computer Pictures Magazine            |
| 1041 | Computer Retail News (CMP)            |
| 1041 | Computer Systems News (CMP)           |
| 1590 | DEC Professional                      |
| 1669 | Digital Review (Ziff-Davis)           |
| 942  | EDN (Cahners)                         |
| 942  | Electronic Business (Cahners)         |
| 947  | Electronic News                       |
| 847  | IEEE Computer Society                 |
| 942  | Mini-Micro Systems (Cahners)          |
| 1669 | PC Week (Ziff-Davis)                  |
| 1947 | Seldin Publishing (Hardcopy Magazine) |
| 1290 | Springer-Verlag                       |
| 2029 | Technology & Business Communications  |
| 2047 | UNIX/World Magazine                   |
| 1041 | VLSI Design (CMP)                     |

### BOOTH RESEARCH APPLICATIONS

|      |                                   |
|------|-----------------------------------|
| 954  | Advanced Technology Center        |
| 635  | Cray Research, Inc.               |
| 1059 | Daikin Industries, Ltd.           |
| 1490 | Decision Images, Inc.             |
| 1450 | EIKONIX Corporation               |
| 1654 | Floating Point Systems, Inc.      |
| 833  | Gould Imaging & Graphics Division |
| 1825 | Inmos Corporation                 |
| 852  | Lazerus Productions               |
| 1360 | Neo-Visuals, Inc.                 |
| 1046 | Perceptics Corporation            |
| 150  | StereoGraphics Corporation        |
| 1152 | Storage Concepts, Inc.            |

### BOOTH ROBOTICS

|      |                                                  |
|------|--------------------------------------------------|
| 1956 | Barco-Industries, Inc.                           |
| 1066 | Data Translation, Inc.                           |
| 833  | Gould Imaging & Graphics Division                |
| 1825 | Inmos Corporation                                |
| 236  | Interactive Machines Incorporated                |
| 2033 | International Imaging Systems (I <sup>2</sup> S) |
| 1667 | Moniterm/Amtron                                  |
| 413  | Silicon Graphics                                 |
| 150  | StereoGraphics Corporation                       |

## PRODUCT INDEX

| BOOTH | SOFTWARE                                                  |
|-------|-----------------------------------------------------------|
| 954   | Advanced Technology Center                                |
| 1809  | ALIAS Research Inc.                                       |
| 1817  | AMAP/CIRAD                                                |
| 128   | Autodesk, Inc.                                            |
| 1064  | AZTEK, Inc.                                               |
| 450   | Cubicomp Corporation                                      |
| 1916  | DAIKIRI                                                   |
| 1920  | DALIM                                                     |
| 219   | DICOMED Corporation                                       |
| 419   | Digital Equipment Corporation                             |
| 1428  | Evans & Sutherland                                        |
| 846   | Flying Moose Systems &<br>Graphics, Ltd.                  |
| 1069  | Genigraphics Corporation                                  |
| 2007  | Geoscan, Inc.                                             |
| 1748  | Grafpoint                                                 |
| 213   | Hewlett-Packard Company                                   |
| 463   | Hitachi America, Ltd.                                     |
| 1825  | Inmos Corporation                                         |
| 1847  | Island Graphics                                           |
| 1050  | Kurta Corporation                                         |
| 852   | Lazerus Productions                                       |
| 1025  | Matrix Instruments                                        |
| 1687  | Media Cybernetics, Inc.                                   |
| 677   | National Technical Information Service                    |
| 1360  | Neo-Visuals, Inc.                                         |
| 1239  | Omnicom Graphics Corporation                              |
| 254   | Pansophic Systems, Inc.                                   |
| 1046  | Perceptics Corporation                                    |
| 250   | Peritek Corporation                                       |
| 1820  | Sogitec                                                   |
| 1436  | Symbolics Graphics Division                               |
| 659   | Talaris Systems Inc.                                      |
| 813   | Template, The Software Division of<br>Megatek Corporation |
| 1813  | TDI (Thomson Digital Image)                               |
| 639   | Texas Instruments Semiconductor<br>Group                  |
| 1561  | Texnai CGL                                                |
| 256   | Wavefront Technologies                                    |
| 1854  | West End Film Inc.                                        |
| 1420  | Xerox Corporation                                         |

## PRODUCT INDEX

### BOOTH STAND-ALONE IMAGE PROCESSORS

|      |                                                  |
|------|--------------------------------------------------|
| 433  | Abel Image Research                              |
| 828  | Adage, Inc.                                      |
| 1064 | AZTEK, Inc.                                      |
| 1490 | Decision Images, Inc.                            |
| 1925 | Diversified Technology, Inc.                     |
| 1067 | Focus Graphics, Inc.                             |
| 1919 | Getris Images                                    |
| 833  | Gould Imaging & Graphics Division                |
| 1751 | Inovion Corporation                              |
| 2033 | International Imaging Systems (I <sup>2</sup> S) |
| 1556 | I.S.G. Technologies Inc.                         |
| 1067 | Kontron Electronics, Inc.                        |
| 1687 | Media Cybernetics, Inc.                          |
| 1667 | Moniterm/Amtron                                  |
| 1046 | Perceptics Corporation                           |
| 650  | Superset, Inc.                                   |
| 639  | Texas Instruments Semiconductor Group            |

### BOOTH TABLETS

|      |                                 |
|------|---------------------------------|
| 1059 | Daikin Industries, Ltd.         |
| 1067 | Focus Graphics, Inc.            |
| 122  | GTCO Corporation                |
| 463  | Hitachi America, Ltd.           |
| 1067 | Kontron Electronics, Inc.       |
| 1050 | Kurta Corporation               |
| 1417 | Numonics Corporation            |
| 628  | Science Accessories Corporation |
| 819  | Seiko Instruments USA Inc.      |
| 1413 | Summagraphics Corporation       |
| 147  | Techexport, Inc.                |

### BOOTH TURNKEY SYSTEMS

|      |                                      |
|------|--------------------------------------|
| 433  | Abel Image Research                  |
| 828  | Adage, Inc.                          |
| 1705 | Artronics                            |
| 128  | Autodesk, Inc.                       |
| 1064 | AZTEK, Inc.                          |
| 1956 | Barco-Industries, Inc.               |
| 442  | CELCO                                |
| 1246 | Computer Graphics Laboratories, Inc. |
| 450  | Cubicom Corporation                  |
| 1920 | DALIM                                |
| 1490 | Decision Images, Inc.                |
| 219  | DICOMED Corporation                  |

## PRODUCT INDEX

### BOOTH      TURNKEY SYSTEMS

|      |                                                  |
|------|--------------------------------------------------|
| 1069 | Genigraphics Corporation                         |
| 2007 | Geoscan, Inc.                                    |
| 1919 | Getris Images                                    |
| 833  | Gould Imaging & Graphics Division                |
| 236  | Interactive Machines Incorporated                |
| 2033 | International Imaging Systems (I <sup>2</sup> S) |
| 1067 | Kontron Electronics, Inc.                        |
| 852  | Lazerus Productions                              |
| 1445 | Management Graphics, Inc. (MGI)                  |
| 2017 | Mangum Sickles Industries, Inc.                  |
| 1687 | Media Cybernetics, Inc.                          |
| 1360 | Neo-Visuals, Inc.                                |
| 1046 | Perceptics Corporation                           |
| 250  | Peritek Corporation                              |
| 859  | Raster Technologies                              |
| 233  | SlideTek Inc.                                    |
| 650  | Superset, Inc.                                   |
| 1436 | Symbolics Graphics Division                      |
| 383  | Transformations                                  |
| 1647 | Wasatch Computer Technology                      |
| 256  | Wavefront Technologies                           |
| 225  | xePIX Incorporated                               |

### BOOTH      TURNKEY SYSTEMS — HARDWARE

|      |                                                            |
|------|------------------------------------------------------------|
| 433  | Abel Image Research                                        |
| 828  | Adage, Inc.                                                |
| 1705 | Artronics                                                  |
| 1064 | AZTEK, Inc.                                                |
| 1956 | Barco-Industries, Inc.                                     |
| 442  | CELCO                                                      |
| 1246 | Computer Graphics Laboratories, Inc.                       |
| 450  | Cubicomp Corporation                                       |
| 219  | DICOMED Corporation                                        |
| 1069 | Genigraphics Corporation                                   |
| 2007 | Geoscan, Inc.                                              |
| 1919 | Getris Images                                              |
| 833  | Gould Imaging & Graphics Division                          |
| 1144 | Graphic Resources Corporation/<br>Graphic Systems Division |
| 236  | Interactive Machines Incorporated                          |
| 2033 | International Imaging Systems (I <sup>2</sup> S)           |
| 1067 | Kontron Electronics, Inc.                                  |
| 852  | Lazerus Productions                                        |
| 1445 | Management Graphics, Inc. (MGI)                            |
| 2017 | Mangum Sickles Industries, Inc.                            |

## PRODUCT INDEX

### **BOOTH      TURNKEY SYSTEMS — HARDWARE**

|      |                             |
|------|-----------------------------|
| 1687 | Media Cybernetics, Inc.     |
| 1360 | Neo-Visuals, Inc.           |
| 1046 | Perceptics Corporation      |
| 859  | Raster Technologies         |
| 233  | SlideTek Inc.               |
| 1436 | Symbolics Graphics Division |
| 383  | Transformations             |
| 256  | Wavefront Technologies      |
| 225  | xePIX Incorporated          |

### **BOOTH      TURNKEY SYSTEMS — SOFTWARE**

|      |                                                  |
|------|--------------------------------------------------|
| 433  | Abel Image Research                              |
| 1705 | Artronics                                        |
| 128  | Autodesk, Inc.                                   |
| 1064 | AZTEK, Inc.                                      |
| 442  | CELCO                                            |
| 1246 | Computer Graphics Laboratories, Inc.             |
| 450  | Cubicomp Corporation                             |
| 1920 | DALIM                                            |
| 219  | DICOMED Corporation                              |
| 1069 | Genigraphics Corporation                         |
| 2007 | Geoscan, Inc.                                    |
| 1919 | Getris Images                                    |
| 833  | Gould Imaging & Graphics Division                |
| 236  | Interactive Machines Incorporated                |
| 2033 | International Imaging Systems (I <sup>2</sup> S) |
| 1067 | Kontron Electronics, Inc.                        |
| 852  | Lazerus Productions                              |
| 2017 | Mangum Sickles Industries, Inc.                  |
| 1687 | Media Cybernetics, Inc.                          |
| 1360 | Neo-Visuals, Inc.                                |
| 1046 | Perceptics Corporation                           |
| 233  | SlideTek Inc.                                    |
| 1436 | Symbolics Graphics Division                      |
| 383  | Transformations                                  |
| 256  | Wavefront Technologies                           |
| 225  | xePIX Incorporated                               |

### **BOOTH      VIDEO DIGITIZER & DISPLAYS**

|      |                             |
|------|-----------------------------|
| 828  | Adage, Inc.                 |
| 1845 | Ampex Corporation           |
| 1956 | Barco-Industries, Inc.      |
| 1456 | ColorGraphics Systems, Inc. |
| 1066 | Data Translation, Inc.      |
| 1490 | Decision Images, Inc.       |

## PRODUCT INDEX

### **BOOTH      VIDEO DIGITIZER & DISPLAYS**

|      |                                                  |
|------|--------------------------------------------------|
| 1925 | Diversified Technology, Inc.                     |
| 1146 | Elographics, Inc.                                |
| 1825 | Inmos Corporation                                |
| 1751 | Inovion Corporation                              |
| 2033 | International Imaging Systems (I <sup>2</sup> S) |
| 2050 | KMS Advanced Products, Inc.                      |
| 1067 | Kontron Electronics, Inc.                        |
| 852  | Lazerus Productions                              |
| 1253 | Matrox Electronic Systems Ltd.                   |
| 1687 | Media Cybernetics                                |
| 428  | Number Nine Computer                             |
| 645  | Parallax Graphics, Inc.                          |
| 233  | SlideTek Inc.                                    |
| 150  | StereoGraphics Corporation                       |

### **BOOTH      VIDEO PROJECTORS**

|      |                                |
|------|--------------------------------|
| 1632 | Electrohome Limited            |
| 454  | General Electric Company, PDPO |
| 445  | Inflight Services, Inc.        |
| 1630 | Kloss Video Corporation        |
| 150  | StereoGraphics Corporation     |
| 1441 | Trident International, Inc.    |

### **BOOTH      VIDEO TAPE RECORDERS**

|      |                                           |
|------|-------------------------------------------|
| 1845 | Ampex Corporation                         |
| 1044 | Lyon Lamb Video Animation<br>Systems Inc. |
| 828  | Adage, Inc.                               |
| 763  | The Winsted Corporation                   |

**MISCELLANEOUS**

**BOOTH      ADVANCED SEMICONDUCTORS FOR GRAPHIC APPLICATIONS**

242            NEC Electronics Inc.

**ARRAY PROCESSORS**

1329          Mercury Computer Systems, Inc.

**COMPUTER ANIMATION FILMS**

1813          TDI (Thomson Digital Image)

**COMPUTER GRAPHICS SLIDEMAKING SYSTEMS**

1445          Management Graphics, Inc. (MGI)

**COMPUTER MICE**

2024          Measurement Systems Inc.

1413          Summagraphics Corporation

**CONTROLLERS, COMM I/F**

1613          KMW Systems Corporation/Auscom

**DATA COMMUNICATIONS; LOCAL AREA NETWORKS**

239            Proteon, Inc.

**DESKTOP PUBLISHING**

1847          Island Graphics

1854          West End Film Inc.

**DIGITAL DISK RECORDER**

1367          Abekas Video Systems, Inc.

**DIGITAL IMAGING CAMERAS**

1450          EIKONIX Corporation

**DIGITAL SPECIAL EFFECTS**

1367          Abekas Video Systems, Inc.

**DIGITAL STILL STORE SYSTEM**

1367          Abekas Video Systems, Inc.

**DIGITIZERS**

1067          Kontron Electronics, Inc.

**DRAW & PAINT SOFTWARE**

1847          Island Graphics

**ELECTRONIC EQUIPMENT CABINETS**

763            The Winsted Corporation

**MISCELLANEOUS**

|              |                                                                            |
|--------------|----------------------------------------------------------------------------|
| <b>BOOTH</b> | <b>FIBER OPTIC TRANSMISSION</b>                                            |
| 2008         | MERET, Inc.                                                                |
|              | <b>FILM PROCESSING EQUIPMENT, COPY STANDS AND SLIDE MOUNTING EQUIPMENT</b> |
| 1154         | King Concept Corporation                                                   |
|              | <b>FLEXIBLE RASTERIZING SYSTEMS</b>                                        |
| 2007         | Geoscan, Inc.                                                              |
|              | <b>FLIGHT AND ENGINEERING SIMULATION</b>                                   |
| 1428         | Evans & Sutherland                                                         |
|              | <b>FONTS</b>                                                               |
| 156          | Flamingo Graphics                                                          |
|              | <b>FORTY-EIGHT BIT EXTENSION PROCESSOR FOR PC</b>                          |
| 650          | Superset, Inc.                                                             |
|              | <b>GRAPHICS TERMINAL EMULATOR</b>                                          |
| 954          | Advanced Technology Center                                                 |
|              | <b>HARDWARE &amp; VISUAL SYSTEMS</b>                                       |
| 1428         | Evans & Sutherland                                                         |
|              | <b>HIGH SPEED, HIGH DENSITY CIRCUIT BOARDS</b>                             |
| 1243         | Multiwire Division — Kollmorgen Corporation                                |
|              | <b>IMAGE ACQUISITION</b>                                                   |
| 1450         | EIKONIX Corporation                                                        |
|              | <b>IMAGE PRODUCTION</b>                                                    |
| 1916         | DAIKIRI                                                                    |
|              | <b>JOURNALS AND BOOKS</b>                                                  |
| 134          | American Association for the Advancement of Science                        |
|              | <b>JOYSTICKS</b>                                                           |
| 1690         | CH Products                                                                |
| 2024         | Measurement Systems Inc.                                                   |
|              | <b>LASER AND POST SCRIPT PRINTERS</b>                                      |
| 868          | QMS, Inc.                                                                  |

## MISCELLANEOUS

### **BOOTH      LASER PRINTERS**

138            AST Research, Inc.

### **LCD PROJECTION DEVICE**

1447           Eastman Kodak Company

### **LEASING SERVICES**

891           Equitable Life Leasing Corporation

### **LIGHT AND COLORIMETERS**

2054           Minolta Corporation

### **PARALLEL PROCESSOR**

154           Meiko Incorporated

### **PC GRAPHICS PRODUCTS**

1032           Metheus Corporation

### **PEN PLOTTER SUPPLIES AND ELECTROSTATIC MEDIA AND TONER**

842           Graphic Controls

### **PHIGS SOFTWARE**

813           Template, The Software Division of  
Megatek Corporation

### **PLOTTER SUPPLIES AND ACCESSORIES**

1390           Koh-I-Noor Rapidograph, Inc.

### **PLOT SERVER**

2007           Geoscan Inc.

### **POINTING DEVICES**

2024           Measurement Systems Inc.

### **PROFESSIONAL TRADE ASSOCIATION**

844           National Computer Graphics  
Association

### **REAL TIME DISK SUBSYSTEMS**

1152           Storage Concepts, Inc.

### **REAL TIME SIMULATION**

852           Lazerus Productions

1056           XTAR Electronics, Inc.

### **SEMICONDUCTORS**

1825           Inmos Corporation

## MISCELLANEOUS

### **BOOTH SOFTWARE DEVELOPMENT TOOLS FOR GRAPHICS APPLICATIONS**

1032 Metheus Corporation

### **STEREOSCOPIC DISPLAY SYSTEMS**

150 StereoGraphics Corporation

### **STEREOSCOPIC PROJECTION**

852 Lazerus Productions

### **SUPERCOMPUTERS**

635 Cray Research, Inc.

154 Meiko Incorporated

### **TEKTRONIX EMULATION SOFTWARE**

1748 Grafpoint

### **TELEVISION RESEARCH CENTER**

1913 I.N.A.

### **TEST EQUIPMENT**

252 Quantum Data Inc.

### **3-D IMAGE MOVER**

122 GTCO Corporation

### **TOUCH PADS AND TOUCH SCREENS**

1146 Elographics, Inc.

### **TRACKBALLS**

2024 Measurement Systems Inc.

### **TRACKERS**

1672 Polhemus Navigation Sciences

### **VIDEO ENCODERS**

1044 Lyon Lamb Video Animation  
Systems Inc.

### **VIDEO PAINT SYSTEM**

1617 Dubner Computer Systems

### **VIDEO PROCESSORS**

742 Graftel, Inc.

### **VIDEO SCAN CONVERTERS**

1044 Lyon Lamb Video Animation  
Systems Inc.

**MISCELLANEOUS**

**BOOTH      VIDEO SIGNAL GENERATORS**

252            Quantum Data Inc.

**VIDEO SYNC GENERATORS**

1044        Lyon Lamb Video Animation  
              Systems Inc.

**VLSI GRAPHICS CHIPS**

439            National Semiconductor Corporation

## AREA MAP

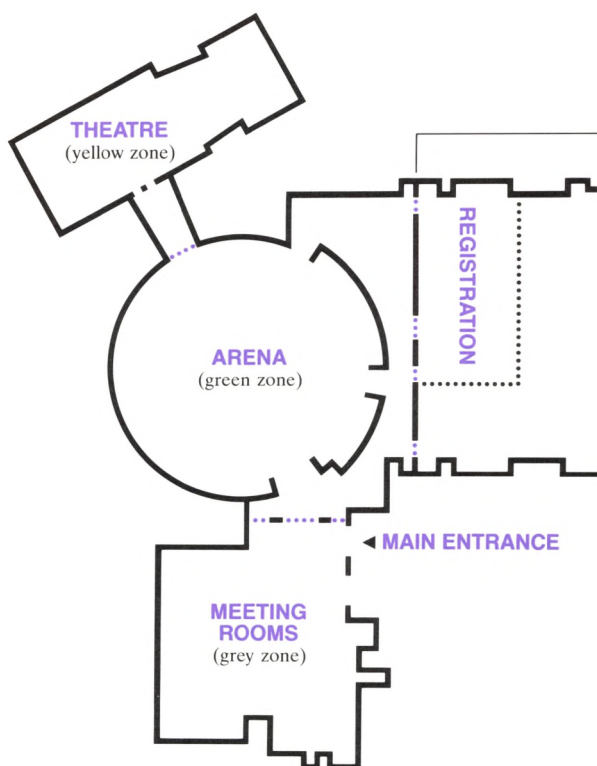
- 1 Hyatt Regency  
Dallas\*\*
- 2 Plaza of the  
Americas Hotel\*\*
- 3 Sheraton Dallas  
Hotel and  
Towers\*\*
- 4 Adolphus
- 5 Ambassador  
Plaza Hotel
- 6 Bradford Plaza
- 7 Fairmont Hotel
- 8 Grenelefe Hotel
- 9 Dallas Hilton
- 10 Holiday Inn  
Downtown
- 11 Loews Anatole  
Hotel
- 12 Dallas Marriott  
Market Center
- 13 Dallas Plaza  
Hotel
- 14 Wyndham Hotel  
Dallas Market  
Center
- 15 INFOMART  
(Technical  
Program  
Reception Site)

\*\* indicates principal  
conference hotel





## CONVENTION LOCATOR



### THEATRE

Courses  
Panels  
Rooms S303-S308  
S411-S414

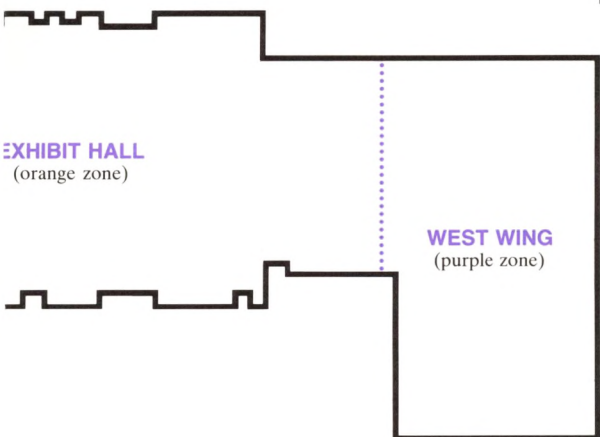
### ARENA

Electronic Theatre  
Technical Papers

### MEETING ROOMS

Courses  
East Ballrooms A-D  
N201-N236 and N401

— See detail maps on pages 222-227. —



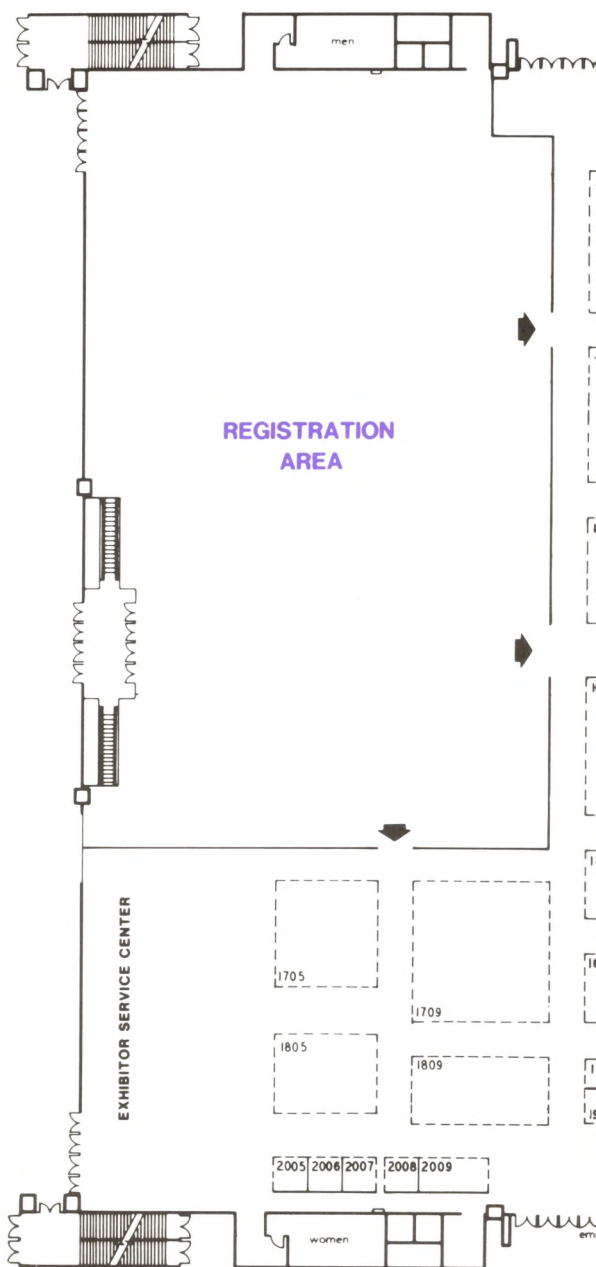
## EXHIBIT HALL

Industry Exhibition  
Registration  
Restaurant  
Student Poster and  
Animation Contest  
Entries

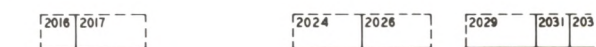
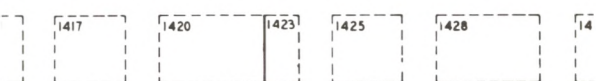
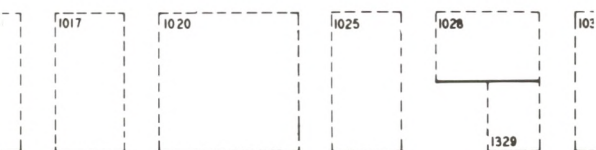
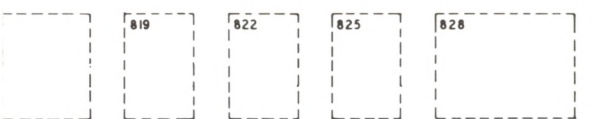
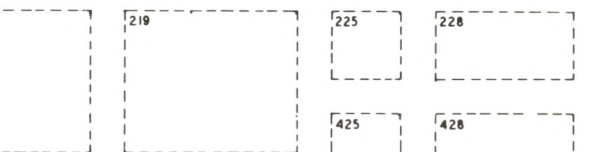
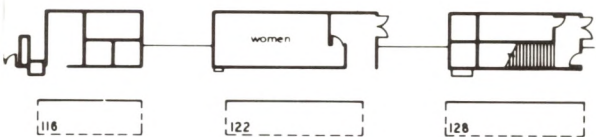
## WEST WING

Animation Screening  
Art Show  
Courses  
Course Lunch  
Rooms W101-W117  
West Ballrooms A-D

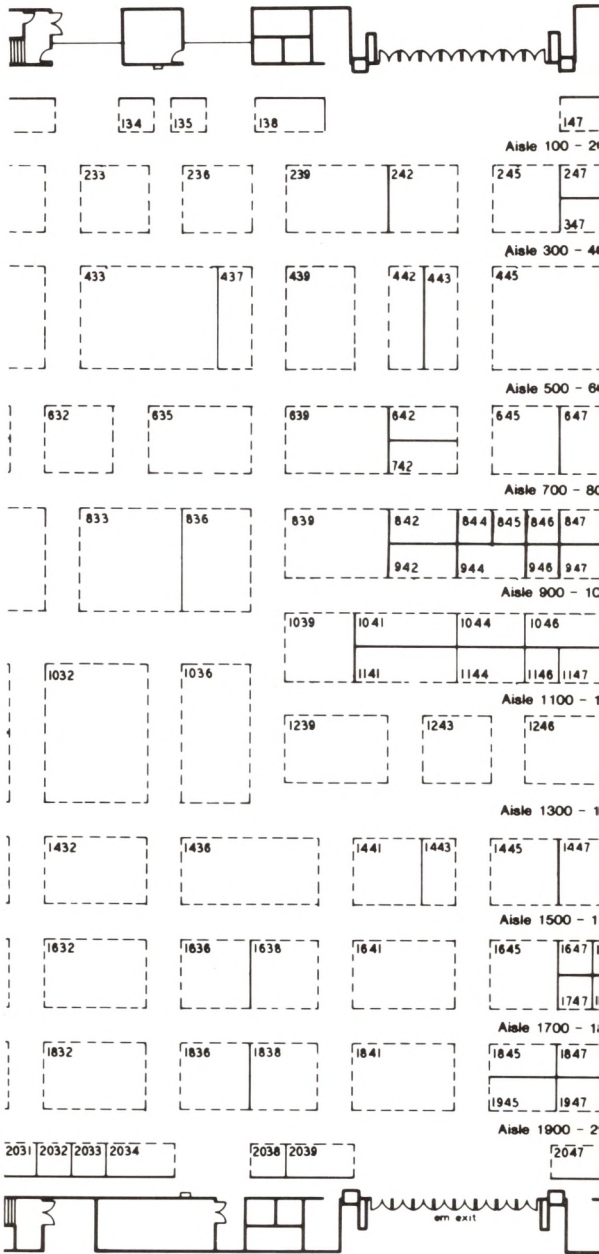
# DALLAS CONVENTION CENTER



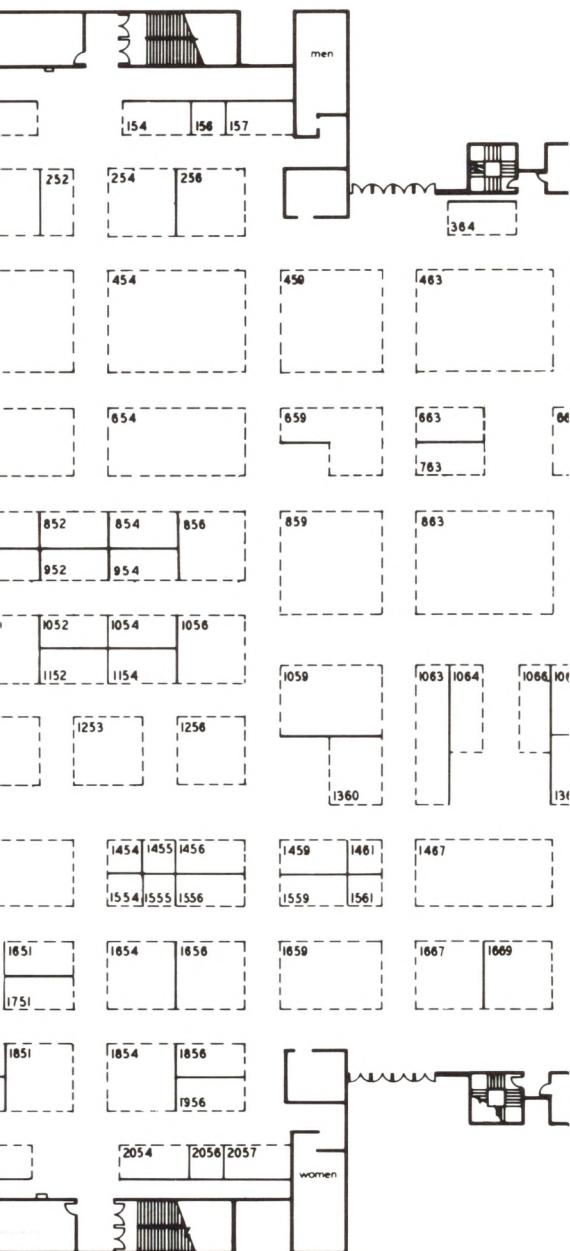
## EAST EXHIBIT HALL



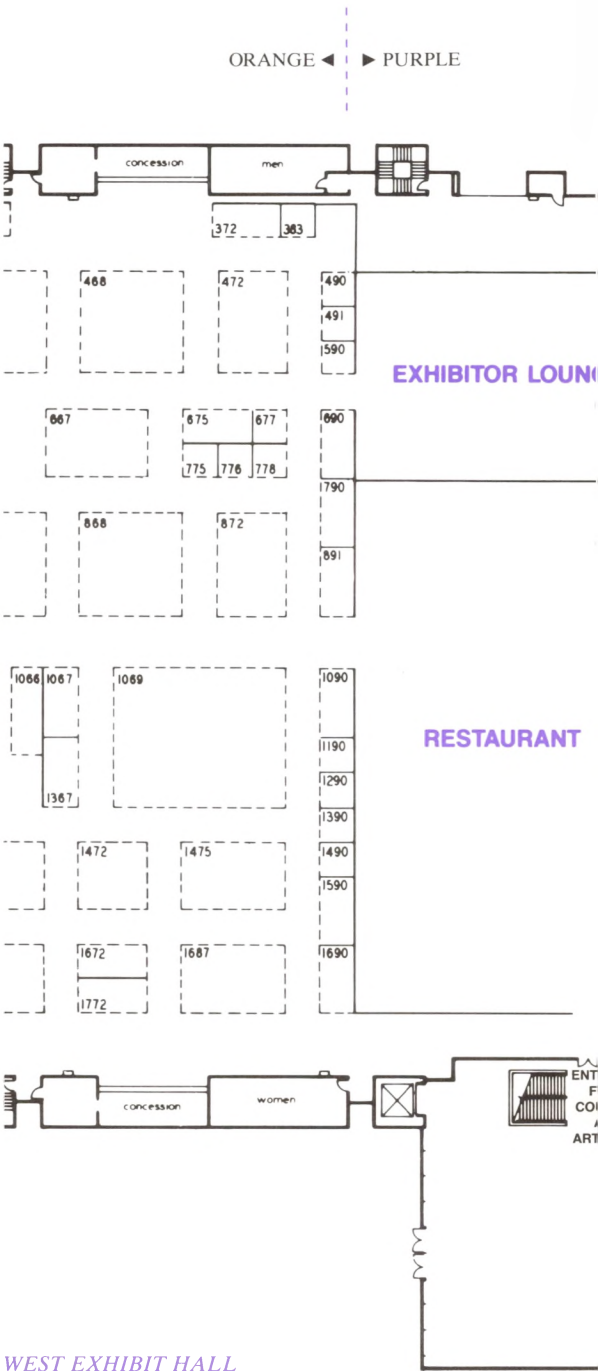
DALLAS CONVENTION CENTER

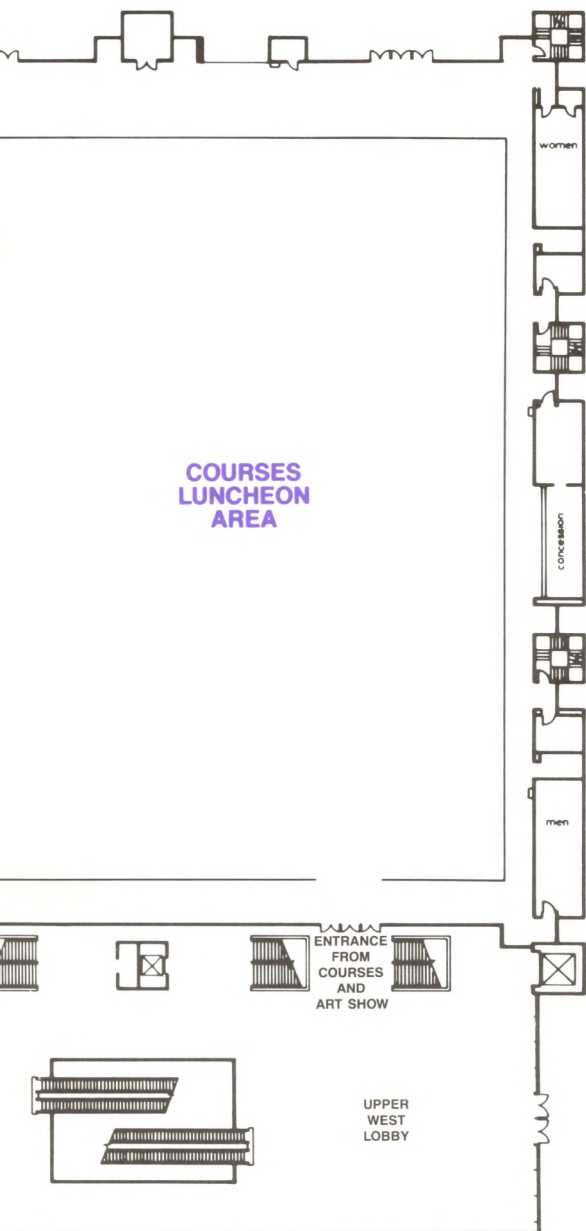


CENTRAL EXHIBIT HALL



DALLAS CONVENTION CENTER





## CALL FOR PARTICIPATION

### ACM SIGGRAPH '87

14th Annual Conference on Computer Graphics  
and Interactive Techniques  
Anaheim, California  
July 27-31, 1987

Sponsored by the Association for Computing Machinery's Special Interest Group on Computer Graphics in cooperation with the IEEE Technical Committee on Computer Graphics.

### THE CONFERENCE

The annual SIGGRAPH conference is the premier forum for the presentation of leading-edge research in computer graphics. Each year the latest computer graphics research developments, application advancements, technological breakthroughs and industry issues are addressed. The conference committee invites you to join an international cast of computer graphics enthusiasts in continuing this tradition at SIGGRAPH '87 in Anaheim. Submissions are now being sought for the technical papers, panels, courses, film and video show, art show and slide sets.

### TECHNICAL FOCUS

SIGGRAPH '87 invites your submissions in all areas of computer graphics and interactive techniques to its technical paper, panel and course programs. Specifically encouraged are contributions that apply to the new breed of workstations for scientific, business and home applications. The **technical program** presents new results in the traditional scholarly form of presented and published papers. The **panel sessions** provide alternative formats for illustrating different viewpoints of an issue or introducing a subject area that is not adequately represented elsewhere in the conference. A series of **courses** on beginning, intermediate and advanced material presents more depth in particular technical areas. Appropriate topics for all technical presentations will include, but are not limited to:

- Rendering algorithms and systems

## CALL FOR PARTICIPATION

### TECHNICAL FOCUS

- Lighting models
- Geometric modelling
- CAD/CIM
- Animation
- Interaction handling and techniques
- Graphics hardware
- Data and process visualization
- Graphics systems
- Integrated text and graphics
- Color
- Graphics technology applicable to workstations
- Novel use of graphics in applications

Contributors are encouraged to call the SIGGRAPH conference management office at 312-644-6610 to request an author's packet for any of the three programs. These packets provide further detail about ACM publication standards, submission guidelines and the SIGGRAPH reviewing processes.

### TECHNICAL PROGRAM

Previously unpublished papers in all areas of computer graphics and interactive techniques are solicited for formal review for the technical program. Accepted papers will be presented during three days of technical sessions at the conference and published in the conference proceedings, a special issue of *Computer Graphics*. The technical program is considered the leading forum for the presentation of new research results in the field of computer graphics, and previous SIGGRAPH conference proceedings have become standard references in the field.

A submission should contain original research results and meet the ACM standards for a scholarly publication. The tight review and production cycles do not allow time for rewrite and re-review. Acceptance or rejection of a paper is based on the work as submitted, which should be complete and refined. This procedure allows the timely presentation of new results while maintaining the publication standards of a reviewed journal.

## CALL FOR PARTICIPATION

### TECHNICAL PROGRAM

To be considered for the conference, a paper should include an abstract of 100 to 300 words, a discussion of how the reported results relate to other work, illustrative figures and citations to the relevant literature. The paper should present sufficient detail of the new work plus appropriate background or references to enable the reviewers to assure themselves that the ideas presented are correct and the work performed could be duplicated. Final formatted length for accepted papers will be eight double-column pages, which corresponds to approximately 20 double-spaced, unformatted, typed pages. Video and film material integral to the content of the paper should accompany the paper. The video portion of accepted papers will be published in the SIGGRAPH Video Review.

Five copies of each submitted paper must be received by Tuesday, January 13, 1987. This is an absolute deadline. Papers not in the technical program office at that time will not be reviewed. Papers which clearly do not meet SIGGRAPH's standards for applicability, originality, completeness or page length may be rejected without review. Acceptance notification will be by March 25, 1987 and final, camera-ready papers will be due in mid-May 1987.

Send technical program submissions to:

Maureen C. Stone  
SIGGRAPH '87 Technical Program Chair  
Xerox PARC  
3333 Coyote Hill Road  
Palo Alto, CA 94304  
415-858-2890

### TECHNICAL PROGRAM COMMITTEE:

Richard J. Beach, Xerox PARC  
John C. Beatty, University of Waterloo  
R. Daniel Bergeron, University of New Hampshire  
James F. Blinn, Jet Propulsion Laboratory  
Edwin E. Catmull, PIXAR  
Elaine Cohen, University of Utah

## CALL FOR PARTICIPATION

### TECHNICAL PROGRAM COMMITTEE:

Robert L. Cook, PIXAR

Franklin C. Crow, Xerox PARC

John C. Dill, Microtel Pacific Research

Nick England, Trancept Systems, Inc.

A. Robin Forrest, University of East Anglia

Henry Fuchs, University of North Carolina at  
Chapel Hill

James T. Kajiya, California Institute of  
Technology

Martin E. Newell, CIMLINC

Rob Pike, AT&T Bell Laboratories

David F. Rogers, United States Naval Academy

J. Turner Whitted, University of North Carolina  
at Chapel Hill

### PANELS

Proposals are invited for panel sessions at SIG-GRAPH '87. Accepted panels will be presented during three days of technical sessions at the conference, and a brief panel description will appear in the conference proceedings, a special issue of *Computer Graphics*. Panel sessions will present interesting techniques and applications in a manner that illustrates different viewpoints or introduces subject areas that are not adequately represented elsewhere in the conference.

Possible formats for panel sessions include, but are not limited to:

- Surveys of topics
- Status reports of areas
- Problem solutions from a variety of experiences and perspectives
- Comparisons between implementations, techniques, designs or algorithms
- Specialized areas of interest
- Debates

Panel selection will be based on the importance of the issues covered and potential for lively exchange by panel members. The preferred panel organization is one with a maximum of four panel members, short presentations by each member (less than 10 minutes) and questions that bring out discussion of related work among participants.

## CALL FOR PARTICIPATION

### PANELS

A two-page proposal describing the issues to be discussed and statements from the panelists explaining their (possibly opposing) viewpoints should be submitted. A cover sheet with panel title, panelists' names and affiliations, and panel organizer's name, affiliation, address and phone number should be included. Panel members will be asked to agree to publication of their remarks as panel sessions may be recorded and made available for distribution to attendees.

Five copies of each panel proposal must be received by Tuesday, January 13, 1987. Acceptance notification will be by March 25, 1987.

Send panel submissions to:

Sara A. Bly  
SIGGRAPH '87 Panels Chair  
Xerox Corporation  
3333 Coyote Hill Road  
Palo Alto, CA 94304  
415-858-2890

### COURSES

Proposals are invited for courses at the SIGGRAPH '87 conference. The courses will each be one day long (seven class hours) and will be taught on Monday and Tuesday of the conference week. Course notes will be distributed to each course attendee and will also be available for sale at the conference.

Courses will be divided into beginning, intermediate and advanced levels and will cover a wide variety of topics associated with computer graphics and interactive techniques. Courses complement the other SIGGRAPH conference activities by providing more depth in particular topic areas.

A proposal should include, as a minimum, a brief description of the material to be presented, the level of the course (beginning, intermediate or advanced), an outline of topics, and proposed speakers. Selections will be based on the suggested content and the quality of the offering.

## CALL FOR PARTICIPATION

### COURSES

The number of courses that can be accepted is limited by the number of available rooms in and around the Anaheim Convention Center.

Five copies of the proposal must be received by the courses committee by Tuesday, November 11, 1986. Course chairs will be notified of the decision of the reviewers by January 7, 1987.

Send course submissions to:

Mike Bailey  
SIGGRAPH '87 Courses Chair  
Megatek Corporation  
9645 Scranton Road  
San Diego, CA 92121  
619-455-5590

### FILM AND VIDEO SHOW

The SIGGRAPH '87 film and video show, which will be presented Tuesday, Wednesday and Thursday nights, will combine all forms of digital communication into one entertainment piece. It will contain a selection of outstanding computer graphic animation in the following categories:

- Research
- Science and industry
- Broadcast
- Theatrical motion-picture
- Corporate communication
- Fine Art
- Music visualization

Entries for the SIGGRAPH '87 film and video show are solicited but need not be limited to film and video. Those who have computer graphics output in a medium other than film or video should request the SIGGRAPH '87 film and video show information package. This lists all acceptable formats, including 35mm, one-inch video, 3-D projection, split-screen, six-inch slides, digital audio sound tracks from disc, midi-interfaces, RGB or NTSC projection, and laser vector graphic projection.

## CALL FOR PARTICIPATION

### FILM AND VIDEO SHOW

The SIGGRAPH film and video show is a world renowned showcase for the most creative and contemporary computer graphics applications. Faculty, students, independents, and national and international firms are encouraged to enter. The deadline for entries is Friday, April 17, 1987.

For further information, please contact:

Joan Collins  
SIGGRAPH '87 Film and Video Show Chair  
11920 W. Olympic Blvd.  
Los Angeles, CA 90064  
213-826-3777

### ART SHOW

A magical combination of art and technology will make the SIGGRAPH '87 art show a unique visual experience. Contemporary applications of computer graphics as used by the artists in developing the art submitted will be the criteria for selection. Entries should demonstrate how computer graphics plays an expanding role in producing complex, creative and aesthetic images. The deadline date for submissions is Friday, February 13, 1987.

For further information, please contact:

Molly S. Morgan  
SIGGRAPH '87 Conference Coordinator  
714-673-4960

### SLIDES

SIGGRAPH '87 will produce three slide sets for sale at the conference: a technical set, an art set and an industry set. We solicit your contributions for slides in each of these categories. All images will be considered for inclusion in a specific set.

The deadline for submissions is Friday, February 13, 1987. Early entries will be considered by the conference committee for conference promotional pieces and advertising.

The **technical set** represents the state of the art in computer graphics for 1987. This collection of slides will reflect the technological advances made during the past year. Slides will be selected based

## CALL FOR PARTICIPATION

### SLIDES

upon the techniques, algorithms and procedures used to create them, as well as on the visual merit. Research and work in progress will be considered.

The **art set** represents the most advanced technical expertise in computer graphics for art. Slides will be considered based upon visual merit and techniques.

The **industry set** features pictures of the newest equipment, and images of output from various software packages. This set is often used during presentations as an introduction to the hardware and software currently available.

For information concerning the submission of slides, contact:

Bruce Eric Brown  
SIGGRAPH Slides Chair  
The Quail Group, Inc.  
561 East Quail Road  
Orem, UT 84057  
801-225-4342

### EXHIBITION

The SIGGRAPH exhibition of computer graphics is the industry's centerpiece show. More than 250 exhibitors are expected to demonstrate their products in a dazzling display of computer graphics hardware, software and services. Leaders and innovators from around the world will fill over 200,000 square feet of exhibition space in the Anaheim Convention Center. State-of-the-art equipment will be featured in over 45 product areas. Nearly 30,000 industry professionals are predicted to attend this spectacular event.

For more information about the exhibition, contact:

SIGGRAPH '87 Exhibition Management  
Robert T. Kenworthy, Inc.  
866 United Nations Plaza  
New York, NY 10017 USA  
212-752-0911

## SUMMARY PAGE

### SIGGRAPH '87

July 27-31, 1987

Anaheim, California

### MAJOR DUE DATES

All deadlines are firm and will be strictly observed. This allows a fair selection process and time for production of printed materials.

#### *TECHNICAL PAPERS:*

January 13, 1987

Maureen C. Stone

SIGGRAPH '87 Technical Program Chair

Xerox PARC

3333 Coyote Hill Road

Palo Alto, CA 94304

415-858-2890

#### *PANEL SESSION PROPOSALS:*

January 13, 1987

Sara A. Bly

SIGGRAPH '87 Panels Chair

Xerox Corporation

3333 Coyote Hill Road

Palo Alto, CA 94304

415-858-2890

#### *COURSE PROPOSALS:*

November 11, 1986

Mike Bailey

SIGGRAPH '87 Courses Chair

Megatek Corporation

9645 Scranton Road

San Diego, CA 92121

619-455-5590

#### *FILM AND VIDEO SHOW SUBMISSIONS:*

April 17, 1987

Joan Collins

SIGGRAPH '87 Film and Video Show Chair

11920 W. Olympic Blvd.

Los Angeles, CA 90064

213-826-3777

## SUMMARY PAGE

### *ART SHOW SUBMISSIONS:*

February 13, 1987

Molly S. Morgan

SIGGRAPH '87 Conference Coordinator

714-673-4960

### *SLIDE SUBMISSIONS:*

February 13, 1987

Bruce Eric Brown

SIGGRAPH Slides Chair

The Quail Group, Inc.

561 East Quail Road

Orem, UT 84057

801-225-4342

### *VOLUNTEER COORDINATOR*

Patricia Wenner

Computer Science Department

Bucknell University

Lewisburg, PA 17837

717-524-1266

### *EARLY REGISTRATION DEADLINE:*

June 19, 1987

For information about the conference, contact:

SIGGRAPH '87 Conference Management

Smith, Bucklin and Associates, Inc.

111 East Wacker Drive

Suite 600

Chicago, IL 60601 USA

312-644-6610

For information about the exhibition, contact:

SIGGRAPH '87 Exhibition Management

Robert T. Kenworthy, Inc.

866 United Nations Plaza

New York, NY 10017 USA

212-752-0911

## **SIGGRAPH '87 CONFERENCE COMMITTEE**

### **CO-CHAIRS:**

James J. Thomas  
Battelle Pacific Northwest Laboratories

Robert J. Young  
Mission Computer Associates

### **CONFERENCE COORDINATOR:**

Molly S. Morgan  
Zenographics, Inc.

### **TECHNICAL PROGRAM:**

Maureen C. Stone  
Xerox PARC

### **PANELS:**

Sara A. Bly  
Xerox Corporation

### **COURSES:**

Mike Bailey  
Megatek Corporation

### **FILM & VIDEO SHOW:**

Joan Collins  
Abel Image Research

### **ART SHOW:**

For further information, contact  
Molly S. Morgan  
Zenographics, Inc.

### **EXHIBITION:**

Gerry MacDonald  
Megatek Corporation

### **CONFERENCE MATERIALS:**

Katherine Ann Talbert  
ITT Gilfillan

### **SLIDE SETS:**

Bruce Eric Brown  
The Quail Group, Inc.

## **SIGGRAPH '87 CONFERENCE COMMITTEE**

### **SPEAKER SLIDES:**

Michael Bigbee  
ISSCO

### **SPECIAL INTEREST GROUPS:**

John E. French, Jr.

### **VOLUNTEER COORDINATOR:**

Patricia Wenner  
Bucknell University

### **TREASURER:**

Ernest Sasaki  
California Institute of Technology

### **SIGGRAPH VICE-CHAIR FOR CONFERENCE PLANNING:**

Robert A. Ellis  
GE/Calma

### **ACM SIGGRAPH CONFERENCE COORDINATOR:**

Betsy Johnsmiller

### **CONFERENCE MANAGEMENT/NATIONAL PUBLIC RELATIONS:**

Smith, Bucklin and Associates, Inc.

### **EXHIBITION MANAGEMENT:**

Robert T. Kenworthy, Inc.

### **GRAPHIC DESIGN:**

Lorraine Nichols  
Nichol Graphics

## FUTURE CONFERENCES

### SIGGRAPH '87

July 27-31, 1987

Anaheim, California USA

### SIGGRAPH '88

July 25-29, 1988

Atlanta, Georgia USA

### SIGGRAPH '89

August 7-11, 1989

Boston, Massachusetts USA

### SIGGRAPH '90

August 6-10, 1990

Dallas, Texas USA

### SIGGRAPH '91

August 5-9, 1991

San Francisco, California USA

### SIGGRAPH '93

August 2-6, 1993

Anaheim, California USA

## ACKNOWLEDGEMENTS

### CONFERENCE SUPPORT

SIGGRAPH '86 A/V would like to thank General Electric for the use of their beautiful light valve projectors.

### SLIDES

SIGGRAPH '86 and the speaker slide chair wish to thank the companies and individuals who produced slides for the conference. These computer generated slides will be used in the courses, panels and technical paper presentations. We greatly appreciate companies' donations of time, equipment, software and in some cases, labor and materials.

CSU-Chico

IMC Graphics

Genigraphics/Dallas

Genigraphics/New York

Los Alamos National Laboratory

Computer Documentation Group

Illustration/Design Group

*13th Annual Conference  
on Computer Graphics  
and Interactive Techniques*

*Sponsored by the Association  
for Computing Machinery's  
Special Interest Group on  
Computer Graphics in  
cooperation with the IEEE  
Technical Committee on  
Computer Graphics*