EARTHWATCH

GLOBAL RESOURCE INFORMATION DATABASE

GRID
INFORMATION SERIES
NO. 21

SIOUX FALLS
MARCH 1994

A SURVEY OF GEOGRAPHIC INFORMATION SYSTEM AND IMAGE PROCESSING SOFTWARE 1993

UNITED NATIONS ENVIRONMENT PROGRAMME

UNEP

EARTHWATCH

GLOBAL RESOURCE INFORMATION DATABASE

GRID
INFORMATION SERIES
NO. 21

SIOUX FALLS
MARCH 1994

A SURVEY OF GEOGRAPHIC INFORMATION SYSTEM AND IMAGE PROCESSING SOFTWARE 1993

UNITED NATIONS ENVIRONMENT PROGRAMME

UNEP

FOREWORD

GRID, the Global Resource Information Database, was established in 1985, as a part of the environmental assessment activities of the United Nations Environment Programme (UNEP). GRID's mission is to help bridge the gap between the scientific understanding of earth processes and sound management of the environment at national, regional and global levels. It aims to do this by providing up-to-date, reliable geo-referenced information, coupled with access to various geographic information systems.

Beginning in 1991 UNEP/GRID took up the task of conducting a bi-annual comprehensive worldwide survey of Geographic Information System (GIS) and Image Processing (IP) software system vendors in order to compile basic information about the overall state of the industry along with specific information about many of the software systems then available. The GRID Information Series Report No.18 published in January of 1992 contains the results and findings of this survey. This report, entitled "**A survey of geographic information system and image processing software 1991**" was published and distributed widely in developing countries and within the UN system. In keeping with the original intent of providing current updated information, the survey was repeated in 1993, and the results are presented here.

We wish to thank, in particular, those software developers and vendors who took their time to respond to the survey. The survey was carried out by Darrel VanderZee, of Hughes STX Corporation, who is working in support of UNEP/GRID at the EROS Data Center in Sioux Falls, SD, USA under the cooperative agreement between UNEP, NASA, and USGS. We also extend our sincere appreciation to him for the excellent work done.

Harvey Croze
Director
GRID Programme Activity Centre

DISCLAIMERS

Mention of a commercial company or product in this report does not imply endorsement by the United Nations Environment Programme. The use of information from this publication concerning proprietary products for publicity or advertising purposes, is not permitted.

Trademark names and symbols are used in an editorial fashion with no intention of infringement of trademark or copyright laws.

We regret any errors or omissions that we may have unwittingly made.

Opinions expressed in this document are not necessarily those of the United Nations Environment Programme.

TABLE OF CONTENTS

	Page Number
FOREWORD	i
DISCLAIMERS	ii
1. INTRODUCTION	1
2. OBJECTIVES AND SCOPE OF SURVEY	4
3. SURVEY METHODOLOGY	4
4. RESULTS OF THE SURVEY	5
5. SURVEY FINDINGS/OBSERVATIONS	6
6. CONCLUSIONS	10
SUMMARY TABLE 1: 1993 RESPONSES	T-1
SUMMARY TABLE 2: 1991 RESPONSES	T-9
APPENDIX A: COMPLEMENTARY PRODUCTS	A-1
APPENDIX B: ADDRESSES OF 1991 BUT NOT 1993 RESPONDENTS	B-1
APPENDIX C: QUESTIONNAIRE	C-1
APPENDIX D: SURVEY RESPONSES	D-1

1. Introduction

1.1 Geographic Information Systems (GIS)

The concepts behind GIS technology were developed decades ago in the use of transparent map overlays for examining spatial relationships between features on maps of differing thematic emphasis. The use of computers for processing map data was pioneered at the Harvard School of Landscape Design during the mid 1970's.

The development of GIS marks a major transition in the use of computers for processing data. Computers were invented to process numbers and solve mathematical problems. Soon thereafter techniques of encoding letters as sequences of numbers allowed for computers to be able to process words and documents. The advent of GIS was marked by the development of methods for modeling and manipulating spatial information and relationships using computers. Early GIS software was developed on mainframe computers. With the increased speed, sophistication, and storage capacities of computers--especially minicomputers, workstations, and personal computers--GIS software has been migrating to ever more accessible levels of technology. Thus, GIS capabilities are now within reach of anyone who has work to do that involves the manipulation and/or analysis of spatial data.

Even though GIS technologies have been evolving for nearly 30 years, an agreed upon definition of GIS still eludes us. Probably the best definitions are sufficiently broad to allow for substantial latitude in interpretation. All GIS professionals recognize that, to be a GIS, a system must handle spatial data. However, more elaborate definitions like, a computer-based information system that allows capture, verification, storage, retrieval, analysis, update, and output of data which are spatially referenced to the Earth (geo-referenced), may help to clarify (slightly) what a GIS might be.

The basic hardware elements of a GIS include: 1) spatial data input device such as digitizing tablet or raster scanner, 2) central processing unit (CPU), 3) visual display device for interaction and visual analysis, 4) disk storage capability for data storage, and 5) output device such as plotter or printer. In addition to having the software necessary for manipulating, searching, and analyzing spatial data, a GIS must also include software for driving the input and output devices listed above.

In this context, some general functional capabilities of GIS typically include: map digitizing, digital map editing, topological structuring, map display and query, map projection, network flow analysis, vector overlay analysis, buffer generation, cell-based modeling, surface modeling, map composition, and hardcopy output.

Because of the general emphasis of GIS on the processing, manipulation, and analysis of spatial data, and because so many human activities occur and/or have effects in the spatial domain, GIS technologies have found application in a wide variety of fields such as agriculture, land use planning, wildlife conservation, forestry management, fisheries, geology, archeology, hydrology, urban planning, environmental management and monitoring, climate change studies, and others. Since most environmental and natural resource data have locational references, GIS technologies have enormous potential in facilitating sound management of natural resources and the environment.

1.2 Image Processing Systems

Interest in digital image processing can be traced back to the 1920's, when digitized pictures of world events were first transmitted by submarine cable between New York and London. However, it was not until the 1960's that applications of digital image processing techniques became widespread. This decade was marked by both substantial increases digital computing capacities and the establishment of the U.S. space program. This combination of events led to very rapid growth in the development of systems for processing the imagery that was coming out of the space program. Since then, the continued exponential increases in speed and storage capacities of computers has greatly accelerated improvements in accessibility, performance, and sophistication of image processing systems.

As with GIS, image processing systems work with data that have a substantial spatial component. The spatial information in images is, however, not explicitly encoded in the data. Rather it is inferred from the proximate relationships of the picture elements (pixels) to each other. The capabilities for processing image data are now also within reach of anyone who has serious work to do that involves the manipulation of digital image representations of real world phenomena.

The definition of an image processing system is probably even less clear than that of a GIS, as the applications of image processing are even more broad. Image processing applications cover the spectrum ranging from hand written character recognition to land cover mapping. For purposes of this survey, however, an implicit assumption was made to constrain the definition of image processing systems. Image processing systems in this context must have been designed primarily to manipulate and analyze image data derived from earth-looking satellite or airborne sensors.

At the heart of any image processing system is the computer's central processing unit. Special purpose computers have been built that contain array processors for performing parallel computations. However, most readily available image processing software has been targeted towards more general purpose computer platforms such as workstations and personal computers. Other hardware components of

a complete image processing system include: 1) input device such as tape or disk drive, 2) display device for interaction and visual analysis, 3) vast quantities of disk storage capacity as images can get very large, and 4) output device such as plotter or printer. The final component of an image processing system is the software that drives all of these devices and performs the various image manipulation algorithms used to aid in the extraction of information from the image data.

In this context, some general functional capabilities of image processing systems typically include: interactive display, image enhancement, geometric rectification, spatial filtering, image mosaicing, fourier analysis, radiometric corrections, multi-variate analysis, multi-spectral classification, raster-gis modeling, radar geocoding and analysis, image annotation, and hardcopy output.

Digital image processing techniques have been and are being used in a variety of applications including geology, petroleum exploration, archeology, physics, astronomy, biology, nuclear medicine, electron microscopy, law enforcement, defense, natural resource monitoring, environmental assessment, and others. The applicability of image processing technologies for monitoring, mapping, and managing natural resources and for monitoring various environmental phenomena using satellite derived imagery cause these technologies to be of particular interest to environmental and natural resource agencies and institutions.

1.3 Other Spatial Data Systems

While this survey was intended to focus on GIS and IP systems, it was anticipated that some of those surveyed would offer products in one of the closely related fields of Automated Mapping and Facilities Management (AM/FM) or Computer Aided Design (CAD). Both are closely related to GIS, but are much more limited in scope and application.

AM/FM systems are generally less sophisticated than full scale GIS's in their capabilities for manipulating spatial data and analyzing relationships between elements. AM/FM systems are often used by utility companies to record and keep track of power lines, gas lines, valves, meters, land, etc. One of their primary purposes is to make the task of producing maps of facilities easier. The more sophisticated systems allow for modeling connectivity and flow, among other things.

While CAD systems are used to model entities that occur in space, the geometric nature of these entities is generally far more simple than many of the real world phenomena that are modeled in a GIS. CAD systems typically deal with geometry that contains many horizontal and vertical lines, regular angles, circular and other smooth curves, etc. GIS systems, on the other hand, deal with lines of a fractal nature, such as coastlines and contours. And in

terms of spatial relationships, topology is more important in GIS than in CAD.

Thus, while the similarities between GIS, AM/FM, and CAD are many, the differences are also quite significant. It is important that the reader be aware of these differences, when trying to match a system to both present and anticipated future needs.

2. Objectives and Scope of Survey

The objectives of this survey were much the same as they were in 1991; to provide potential users of GIS and IP software with basic information about what systems are available, something about the capabilities of these systems, and to provide references for obtaining more detailed information on the various systems. It is intended to be something of an introductory 'buyers-guide' to GIS and IP software systems. An additional objective was to do a comparative analysis between years in an attempt to identify trends and/or advances in the GIS and IP software industries. This survey is not unique in this regard. Others have and will continue to perform similar surveys and produce similar reports. Examples include:

'A survey of Geographic Information Systems - for natural resources decision making', 1987. The American Farmland Trust, Washington, D.C.

'Directory of Geographic Information Systems and Related Products and Services 1990', Earth Observation Satellite Company (EOSAT), Maryland, U.S.A.

'The 1994 International GIS Sourcebook' (updated annually since 1989), GIS World, Ft. Collins, Colorado, U.S.A.

However, audiences for each of these tend to be quite different, and most are not readily available to environmental agencies and institutions in developing countries.

3. Survey Methodology

A new questionnaire was designed for the 1993 survey, and it was sent to 377 companies and institutions in 25 countries that were believed to be distributing either GIS, IP or related software systems. The list of survey recipients was derived from the list of 110 vendors used for the 1991 survey with substantial additions from the 1993 International GIS Sourcebook's listing of software vendors and a few more from personal contacts within the GRID system. The 1991 vendor list was derived primarily from The 1990 GIS Sourcebook and the Association for Geographic Information Yearbook, 1989.

As in 1991, the questionnaire was designed to elicit information about the general characteristics, operating environments, supported peripherals, and functional capabilities of the software systems. It was designed with the idea that developing country personnel would be the primary consumers of the information being collected, and at the same time keeping in mind that the survey should be as little an inconvenience as possible to those who are tasked with completing the questionnaire. Many of the changes from 1991 were in format and style more so than content. It was hoped that the new more convenient design would serve to increase the level of participation (i.e. response rate) among the recipients of the questionnaire without sacrificing the information content of the responses. A copy of the questionnaire has been included in Appendix C.

Of the 377 organizations to whom the questionnaire was sent, 61 organizations offering GIS or IP products responded without any extra prompting. However, about half of the organizations that responded in 1991 did not respond again in 1993. In the interest of doing a comparative analysis between the 1993 and 1991 results, some extra effort was made to encourage a response from these particular recipients. A simple reminder along with another copy of the questionnaire was faxed to these organizations after the stated deadline for responding had past. This extra effort resulted in only four more responses coming in.

4. Results of the Survey

The responses to the questionnaire have been included in their entirety in Appendix D of this report. Each survey response has been entered in an abbreviated format that corresponds directly with the layout of the original questionnaire. As much 'white space' as possible has been removed to shorten up each response. All information that was provided has been included in this summary format. The only exceptions being when respondents sent official product and/or company brochures; it was simply not feasible to include this information in the report. Interested readers are encouraged to contact the organizations directly for such detailed information. The complete responses in Appendix D are organized in the same manner that the results are presented in Summary Table 1.

Summary Table 1 was designed to give the reader a comparative look at the various products. The information presented in the table was deemed to be some of the most important high level information that prospective buyers would use to quickly sort through the various products to narrow their field of search. The table is organized alphabetically by product name, with some products grouped by organization--for those that offer more than one product. Once the preliminary evaluations have been made at this high level, the reader can turn to Appendix D for more specific and detailed functional and descriptive information about the various products. And finally, if the reader desires even more

information, it can be obtained through the organizational contacts also contained in the appendix.

Summary Table 2 contains similar high level information for those products that were included in the 1991 survey for which no response was received in 1993. This was done for the sake of completeness in covering the major products in the field. The summary information was obtained from the 1991 survey report, but no attempt was made to compile a detailed response for these products. If the reader desires additional information about any of these products, it is recommended that the organizations that supply them be contacted directly. Their addresses are included in Appendix B.

5. Survey Findings/Observations

5.1 Number of Responses

A total of 65 organizations from 13 countries offering GIS, IP or closely related software products responded to the survey with widely varying levels of completeness. Another 6 organizations offering complementary software products responded to the survey; they have been included in Appendix A of this report. In addition, 12 organizations that engage in consulting services related to GIS and IP responded with a desire to obtain a copy of the completed report.

Of the 30 organizations that responded to the survey in 1991, 15 also responded in 1993, while 15 did not participate a second time. Numerous reasons could be speculated upon as to why these organizations may not have responded, but it would only be a matter of conjecture.

5.2 Number of Installations

The total number of installations of GIS and IP software reported by the 65 respondents to the 1993 survey was 91,009. This, added to the 2,889 installations reported by the 15 organizations that responded in 1991 but not 1993, puts the total number of installations somewhere above 93,898 worldwide. An analysis of the figures regarding the distribution of software installations by continent reveals that approximately 65% of the installations are in North America, 22% in Europe, and less than 5% in each of South America, Africa, Asia, and Australia.

5.3 Industry Growth

Because of the differences in both the numbers and identities of the organizations that responded to the survey, it is a bit of a challenge to compare results between years. By comparing the total number of installations reported by the 15 organizations that responded to both surveys, one might conclude that the number of

users has increased by almost a factor of four (18,265 to 71,097). These numbers are very impressive--almost unbelievable. A closer look at the responses reveals that a very large part of this increase came in the increase in number of Environmental Systems Research Institute's (ESRI) product installations. ESRI's 1993 numbers may be inflated by the very rapid popularity of ESRI's new ArcView product, which is quite inexpensive and is not a GIS in the full sense. Thus, a look at the numbers apart from ESRI, reveals a little more than a doubling of installations from 1991 to 1993 (11,165 to 26,097). This seems more likely to be a reasonable indicator of the rate of increase in the use of GIS and IP systems during these two years.

5.4 Market Leaders

ESRI is still clearly the market leader in GIS software products, in terms of number of installations (45,000 reported) worldwide. In the area of full featured image processing systems, ERDAS is still the leader with 2,000 installations. And for both basic GIS and IP capability at a low price, IDRISI's product for PC's is still the leader with 7,900 installations. For automated mapping and facilities management, Accugraph is the leader with 10,000 installations. The number of installations varies a great deal from vendor to vendor. These market leaders represent the high end of the spectrum. On the other end, some relative newcomers reported having as few as one installation at the time the questionnaire was completed.

5.5 New Product Introductions

Since GIS and IP technologies are still relatively young, many companies are introducing new products at a fairly rapid pace. A look at the distribution of products by date of first installation reveals the significant increase in number of offerings in the field starting in the latter half of the eighties and continuing even now. The distribution by date of first installation follows:

```
1970-1972 **
1973-1975 **
1976-1978 ***
1979-1981 ****
1982-1984 ******
1985-1987 ********************
1988-1990 **********************
1991-1993 **************
```

5.6 Functionality and Price

The software systems represented in this survey vary widely in their functional capabilities as well as in their prices. More than 80 percent of the respondents indicated that their products include GIS functionality, about a third consider their products to be IP systems, about 10 percent offer some form of AM/FM system, and

another 10 percent or so offer either CAD or some other GIS or IP related software. Some systems offer a broad range of both GIS and IP functionality, others specialize in one of these two major functional areas, while still others have much more specialized market niches. There is not necessarily a direct relationship between functional capability and price. The commercial products range in price from a few hundred dollars to a few thousand and even up to several tens of thousands of dollars. There are also some very capable systems that are in the public domain; however, support may be limited for some of these.

5.7 Technical Features

Technical sophistication of the software products included in this survey can also vary widely. About 10 percent of the systems are purported to have an expert system capability built into them; 25 percent are said to have an object-oriented software architecture; 30 percent claim to utilize a spatial index to improve efficiencies; 60 percent report to having an integrated data base management system (DBMS); and 60 percent also report to having the capability to link to an external DBMS. In addition to the built in functionality of the systems, 60 percent are reported to support extensions to the system through the use of a vendor supplied macro language; 40 percent offer linkable libraries for data structure access--allowing users to write there own applications software utilizing the same data structures; and source code can be obtained for about 20 percent of the systems--albeit at a significant cost for some of the proprietary systems. The responses to questions about source code and linkable libraries indicate that C is the language of choice for developing GIS and IP systems. FORTRAN still has a foothold, but C outnumbers it by about two to one.

5.8 Turnkey Systems

About two thirds of the vendors responding to the survey are willing to provide turn-key solutions (bundled hardware and software) for their clients. Some offer standard packages, while others prefer to tailor the configuration to a specific user's needs.

5.9 Software Support

More than two thirds of the organizations that responded to the survey indicated that they offer worldwide software support for their products. Almost all of the remainder offer support for a limited portion of the world. Only a couple of respondents indicated that no support is available.

5.10 Training Assistance

About 85 percent of the organizations responding to the survey offer training courses for their clients, about half offer training

assistance in the form of tutorials, and about 10 percent offer training videos for their products.

5.11 Operating Systems

The most common operating systems supported for the various products were Unix and Microsoft's DOS, with about 40 software products offered on each. Apple Computer Corporation's Macintosh was a distant third with 11 products offered on it, Digital Equipment Corporation's (DEC) VMS was fourth with 7, and International Business Machine's (IBM) OS2 was fifth with 6. The most readily apparent trend since the 1991 survey was a reduction in the general proportion of systems that are offered on DEC's VMS operating system--from more than a third of respondents to approximately one tenth. Unix and Dos both were represented in similar proportions in 1993 as in 1991.

5.12 User Interfaces

The trend towards windows based applications and graphical user interfaces throughout the software industry is also occurring with GIS, IP and related applications. More than two thirds of the products for which questionnaires were received are reported to have full graphical user interfaces, while about a third are reported to have windows based interfaces. The responses also indicated that about a third of the products have simple command line interfaces. These results are a little confused by the fact that some products apparently have more than one type of user interface.

5.13 Graphics Environments

The most common graphics environments supported by the various software products are X-windows on Unix systems and Microsoft Windows on PC's. Motif is the most common X-windows window manager supported. Sun's Openlook window manager is a distant second with about half as many products supporting it as support Motif. A few vendors still offer products that support SunView and other less common graphics environments, such as Macintosh, Intergraph's Microstation, etc.

5.14 On-line Help

Nearly all of the systems (90% or so) offer some form of on-line help. Approximately half of the products have basic on-line help, and about an equal number have a more sophisticated context sensitive help facility. About a fourth of the products are reported to have a full hypertext help facility incorporated into the software system. These numbers might also seem a bit confused; apparently some of the systems have more than one type of help facility included.

5.15 Documentation

While users' guides and related documentation have traditionally been distributed in hard copy form, about half of the respondents indicated that their documentation is available in electronic form. Most still offer hard copy documentation, a few offer only an electronic version, and many offer both. Virtually all vendors offer an English version of their software documentation. About 15 percent of respondents offer a French version, less than 10% offer a German version, and even fewer offer documentation in such languages as Chinese, Italian, Dutch, Japanese, Portuguese, Spanish, Danish, Greek, and Russian.

6. Conclusions

It is hoped that this survey provides a fairly comprehensive look at the worldwide offerings in GIS and IP software systems. The number of respondents was up from 30 in 1991 to 65 in 1993. And by including the 15 that responded in 1991 but not 1993, this report covers GIS, IP and related software products offered by 80 different organizations from at least 13 different countries around the world. From the results of this survey, it is quite apparent that the proliferation of GIS and IP technologies is continuing at a very rapid pace--predominantly in North America and Europe. As of mid 1993 there were reported to be almost 100,000 installations of GIS, IP or closely related software systems worldwide.

This report is intended to provide basic information about GIS and IP systems along with names, addresses, and phone numbers of the institutions that provide these systems to potential users in the developing world. No attempt was made to evaluate the functional capabilities of the systems nor to perform benchmark tests of the systems. All the product specific information contained in this report was compiled based on replies received from software vendors. UNEP/GRID takes no responsibility for inaccuracies that may have been present in the vendor responses. It is not recommended that any purchasing decisions be made based solely on the information contained herein. Potential users should contact the software vendors directly for more detailed information as necessary.

SUMMARY TABLES 1 & 2

Summary Table 1: 1993 Responses

	PRODUCT	COMPANY	PRODUCT TYPE				
			GIS	IP	AM/FM	CAD	OTHER
1	ACCUGRAPH	Accugraph, USA			X		
2	AGIS	Delta Data Systems Inc., USA	X	X			
3	ALK-GIAP	Surveying and Mapping Agency, Germany	X				
4	ALLIANCE	Icare International, France	X	X			
5	ARC/INFO, PC ARC/INFO, ARCCAD, ARCVIEW	Environmental Systems Research Institute Inc., USA	X		X		
6	ATLAS GIS GWN-GIS	Scientific Software Group, USA	X X				
7	CADCORE TRACER & RECOGNIZER	Information & Graphic Systems Inc., USA					X
8	CEAL/CEMAP/COGO	CLM/Systems Inc., USA	X				
9	CHIPS	Institute of Geography, Denmark		X			
10	DIGIT II, GIMMS	GIMMS (GIS) Limited, UK	X				
11	DISIMP	Clough Engineering, Australia		X			
12	DRAGON	Goldin-Rudahl Systems, USA		X			
13	EASI/PACE	PCI Enterprises, Canada	X	X			
14	ECODATA	Systems Development Associates, USA	X				
15	ECOSYSTEM TM	Harvard Design & Mapping Company Inc., USA	X				X
16	EPPL7	Minnesota Land Management Information Center, USA	X				
17	ERDAS IMAGINE	ERDAS Inc., USA	X	X			
18	GENAMAP	Genasys II Limited, UK	X	X			

	PLATFORM						TRAINING ASSISTANCE				SUPPORT AVAILABLE			INSTALLATIONS		PODUCT PRICE ($US)
	UNIX	PC/DOS	PC/OS2	VAX/VMS	MAC	OTHER	COURSES	VIDEOS	TUTORLS	OTHER	WORLDWD	LIMITED	N/A	FIRST INST	TOTAL NUM	
1	X						X	X	X		X			1972	10000	5,195
2	X	X					X		X		X			N/A	75	12,600
3	X			X			X		X			X		1986	450	N/A
4		X					X		X		X			1992	20	5,000-15,000
5	X	X		X	X		X	X	X		X			1981	45000	500-12,000
6	X	X X			X		X X		X X		X X			1986 1988	1000 300	2,600 4,000
7	X	X					X		X	X	X			N/A	N/A	2,500+
8	X	X	X	X			X				X			1985	2000	N/A
9		X					X					X		1987	60	Pub.Dom.
10	X	X		X			X	X			X			1980	400	1,400-2,800
11	X						X		X		X			1985	100	6,000
12		X					X		X		X			1988	491	995
13	X	X	X	X	X	X	X		X		X			1982	1000	4,000-30,000
14		X					X							N/A	N/A	400
15						X	X			X	X			1993	2	N/A
16		X					X		X		X			1986	1271	500-1,000
17	X	X				X	X		X		X			1978	2000	8,000
18	X						X				X			1986	3600	12,000-15,000

	PRODUCT	COMPANY	PRODUCT TYPE				
			GIS	IP	AM/FM	CAD	OTHER
19	GEOAYSES	Ayses Inc., Canada	X				
20	GEOCITY	Clemessy S.I.G., France	X				
21	GEOLINK	GeoResearch Inc., USA	X				
22	GEOLOCATE, QUADRANT, ROUTE PLAN, VOYAGER	GeoSystems, USA	X				
23	GEOMANAGEMENT SYSTEM, GMS_DECIDE, GMS_NET	Da Vinci Consulting, Belgium	X				
24	GEOMAX	ACDS Graphic Systems Inc., Canada	X		X	X	
25	GEOPACKAGE	Geops B.V., the Netherlands	X				
26	GIS-CHAINS	Hunter GIS, Canada	X	X	X	X	
27	GISPLUS, TRANSCAD	Caliper Corporation, USA	X				
28	GRADIS-GIS	Strassle Technische Informationssysteme AG, Switzerland	X		X		
29	GWN-GIS	GWN Systems Inc., Canada	X				
30	HYPERBIRD	BSI Engineering, Switzerland	X				
31	HYPERGRID	Inter-Survey Consultants, Switzerland	X				X
32	IDRISI	IDRISI Project, Clark University, USA	X	X			
33	IGIS	Laser-Scan Ltd., UK	X	X			
34	ILWIS	ITC, the Netherlands	X	X			
35	INFOCAD	Digital Matrix Services Inc., USA	X				
36	INFOCAM	Leica AG, Switzerland	X				

	PLATFORM						TRAINING ASSISTANCE				SUPPORT AVAILABLE			INSTALLATIONS		PODUCT PRICE ($US)
	UNIX	PC/DOS	PC/OS2	VAX/VMS	MAC	OTHER	COURSES	VIDEOS	TUTORLS	OTHER	WORLDWD	LIMITED	N/A	FIRST INST	TOTAL NUM	
19		X					X				X			N/A	100	500-2,500
20	X						X		X			X		1987	75	20,000-80,000
21		X					X				X			N/A	500	3,850
22	X	X	X		X					X		X		N/A	N/A	N/A
23	X	X					X				X			1993	N/A	900-10,000
24	X						X				X			1983	440	3,500-9,500
25		X					X		X		X			N/A	150	7,500
26		X					X				X			1985	N/A	10,000-12,000
27	X						X		X		X			1989	1000	2,995, 9,995
28	X						X					X		1991	70	30,000-80,000
29	X	X					X		X			X		1990	100	4,000
30					X		X		X					1989	20	13,000-30,000
31		X												N/A	N/A	N/A
32		X					X		X		X			1987	7900	160-640
33	X						X				X			1992	2	30,000-70,000
34		X					X		X	X	X			1988	1102	4,200-11,100
35	X						X		X		X			N/A	N/A	495-12,500
36	X			X			X				X			1987	34	20,000-60,000

	PRODUCT	COMPANY	PRODUCT TYPE				
			GIS	IP	AM/FM	CAD	OTHER
37	ISROGIS SATELLITE IMAGE PROCESSING SYSTEM	National Remote Sensing Agency, India	X	X			
38	LAMPS	Laser-Scan Inc., USA	X				X
39	LANDMARK & GEO/SQL	ESC Electrical Systems Consultants, USA	X		X		
40	LAS	EROS Data Center, USA		X			
41	MAPBOX RESOURCE ROOTSPRO	Decision Images Inc., USA	X X	X			
42	M.A.P.	Geographic Management Systems, UK	X				
43	MACGIS	Institute for Sustainable Environment, USA	X				
44	MADE	Oyasin Circle Solutions Inc., USA	X				
45	MAPDATABASE, MAPDATALOG, MAPVIDEO	Nucor Hyper Technologies Inc., Canada	X				X
46	MAPGRAFIX GIS	ComGrafix Inc., USA	X				
47	MAPSTAT	Cril Ingenierie, France		X			X
48	MAPVIEWER	Golden Software Inc., USA	X				X
49	MICROBRIAN	MPA Communications Pty. Ltd., Australia		X			
50	MICROGIS	Mizar Inc., USA	X	X			
51	NO NAME	Instituto Geographico Nacional, Spain		X			
52	OBJECTMAP	Ultimap Corporation, USA	X				
53	OzGIS	The Clever Company, Australia	X				
54	SITE COMP	Land Innovation Inc., USA	X			X	
55	SMALLWORLD GIS	Smallworld Systems, UK	X				

	PLATFORM						TRAINING ASSISTANCE				SUPPORT AVAILABLE			INSTALLATIONS		PODUCT PRICE ($US)
	UNIX	PC/DOS	PC/OS2	VAX/VMS	MAC	OTHER	COURSES	VIDEOS	TUTORLS	OTHER	WORLDWD	LIMITED	N/A	FIRST INST	TOTAL NUM	
37	X X	X				X	X X		X			X X		1993 1990	N/A 15	6,000, 3,000- 10,000
38	X			X			X				X			N/A	133	16,000- 60,000
39	X	X	X				X				X			N/A	N/A	4,500
40	X									X			X	1983	70	Pub.Dom.
41		X X X			X						X X X			1990 1985 1989	200 100 300	995-1495 2,750 995-1495
42		X					X				X			N/A	150	10,000- 20,000
43					X		X		X		X			1987	800	300
44	X							X	X			X		1993	6	1,995- 4,995
45		X					X				X			1988	180	3,500- 9,000
46					X		X				X			1988	800	5,000- 6,500
47	X						X		X		X			1989	54	31,000
48		X				X			X					1990	N/A	249
49		X					X				X			1985	250	10,000- 18,000
50	X	X			X	X	X	X			X			1992	50	3,500
51						X								N/A	N/A	N/A
52	X		X				X					X		1977	50	N/A
53		X							X			X		1982	500	520
54	X						X		X	X	X			1978	N/A	1,995- 3,995
55	X						X				X			1990	100	8,000- 46,500

	PRODUCT	COMPANY	PRODUCT TYPE				
			GIS	IP	AM/FM	CAD	OTHER
56	SOFTRISK	Impact Research Group Ltd., Canada	X				
57	SPANS GIS, IMAGE, MAP	Tydac Technologies Ltd., UK	X	X			
58	SPASE	Geotech Computer Systems Inc., USA					X
59	SPRING	INPE-National Institute of Space Research, Brazil	X	X			
60	STAR CARTO	Star Informatic, Belgium	X				
61	STATMAP III FOR WINDOWS TIGER TOOLS FOR WINDOWS WINDOWS/ON THE WORLD	Geovision Inc., USA	X X				X
62	SYNARC	Geomath Inc., USA	X	X			
63	TNTMIPS	Micro Images, USA	X	X	X	X	X
64	TOPOLOGIC	Geometria GIS Systems House, Hungary	X				
65	VI^{2}STA	International Imaging Systems, USA	X	X			

	PLATFORM						TRAINING ASSISTANCE				SUPPORT AVAILABLE			INSTALLATIONS		PODUCT PRICE ($US)
	UNIX	PC/DOS	PC/OS2	VAX/VMS	MAC	OTHER	COURSES	VIDEOS	TUTORLS	OTHER	WORLDWD	LIMITED	N/A	FIRST INST	TOTAL NUM	
56		X					X		X		X			1991	24	8,900
57	X	X	X				X		X		X			1982	3000	999-22,000
58		X					X		X		X			1990	120	2,000-3,500
59	X	X					X				X			1992	50	20,000
60	X	X					X		X			X		1989	180	20,000-40,000
61		X					X		X		X			1992	2000	595
		X					X		X		X			1989	500	500
		X												N/A	2000	595
62	X						X		X		X			1993	24	28,000
63	X	X			X		X				X			1986	N/A	4,000-10,000
64	X						X		X				X	1988	30	4,000-12,000
65	X						X		X		X			1993	61	7,000-25,000

Summary Table 2: 1991 Responses

	PRODUCT	COMPANY	PRODUCT TYPE				
			GIS	IP	AM/FM	CAD	OTHER
1	ARIES 300 ARIES 4000	DIPIX Technologies Inc., Canada	X	X			
2	CRIES	Michigan State University, USA	X				X
3	GISCAD	Geotrace Technologies Inc., USA	X				
4	GRASS	U.S. Army Construction Engineering Research Lab.	X	X			X
5	IDIMS MICRO IMAGE	Terra-Mar Resource Information Services Inc., USA	X	X			
6	INTERNATIONAL IMAGING SYSTEMS	International Imaging Systems, USA		X			X
7	INFOMAP	Synercom Technologies Inc., USA	X		X		X
8	LASERSCAN	Laser Scan Ltd., UK	X	X			
9	MAPS IN ACTION	Action Information Ltd., UK	X				
10	PAFEC-GIS	Pafec Ltd., UK	X		X		X
11	PALMS	Harvard Graduate School of Design, USA	X				
12	PAMAP	Pamap Technologies Corp., Canada	X				
13	PIMMS	Hoskyns GIS, UK	X				
14	RSG	Institute of Image Processing, Austria	X	X			X
15	VORTEX	Aangstrom Presicion Corp., USA	X				X

	PLATFORM						TRAINING ASSISTANCE				SUPPORT AVAILABLE			INSTALLATIONS		PODUCT PRICE ($US)
	UNIX	PC/DOS	PC/OS2	VAX/VMS	MAC	OTHER	COURSES	VIDEOS	TUTORLS	OTHER	WORLDWD	LIMITED	N/A	FIRST INST	TOTAL NUM	
1	X			X						X				1980	240	15,000+
2		X								X				1980	50	1,500
3		X								X				1989	50	6,500-25,000
4	X									X				1987	200	Pub.Dom. to 3,770
5	X	X								X				1970 1984	N/A	8,000+ 3,000+
6	X			X						X				1984	800	25,000-100,000
7	X			X						X				1973	300	250,000-900,000
8	X			X						X				1975	300	30,000-80,000
9		X								X				1986	213	30,000
10	X			X		X				X				1988	100	15,000+
11					X					X				1991	1	3,500
12	X	X		X						X				1985	300	7,000
13	X					X				X				1989	9	20,000
14	X	X		X						X				1986	1	N/A
15	X									X				1988	325	10,000-50,000

APPENDIX A

COMPLEMENTARY PRODUCTS

Complementary Products

A few companies offering products that are complementary to GIS and IP systems responded to the questionnaire. While it was not appropriate to intermix these products with the others in the tables, neither did it seem appropriate to leave them out completely. Thus, they are presented here in very brief form, and the reader is encouraged to contact these vendors directly if more information is desired.

Adam Technology (Enterprise Unit 1, P.O. Box 380, Bentley, WA 6102, Australia; phone: 619 470 2322, fax: 619 470 2303; contact: Mr. Paul Royer) offers a small format aerial photography system that has links to a PC system.

DAT/EM Systems International (1935 Merrill Field Drive, Anchorage, Alaska 99501, USA; phone: 907 274 3681, fax: 907 272 6413; contacts: Jim Cucurull, Jeff Yates) offers a map compilation system called DGN/CAPTURE that works with either Microstation or AutoCAD and a digital stereoplotter system called DIGITUS.

Grafpoint, Inc. (1485 Saratoga Ave., San Jose, CA 95129, USA; phone: 408 446 1919, fax: 408 446 0666; contact: Lisa Christiansen) offers a Tektronix Emulation package called TGRAF and X-Server software called X-One.

Hughes Aircraft of Canada Ltd. (Spatial Data Systems Division, Suite 320, 6715 - 8th Street NE, Calgary, Alberta T3E 7H7; phone: 403 295 6600, fax: 403 295 6607; contact: Arif Quadir) offers a scannded data conversion package called DataPath Conversion System.

Mandli Communications, Inc. (2211-D Parview Road, Middleton, WI 53562, USA; phone: 608 836 3344, fax: 608 836 8176; contact: Jim Zellmer) offers a product called Roadview Video Image Capture System (VICS™) which is an image capturing system that collects video images of the views that can be seen as one is driving along the road. These images are geolocated so that they can be easily viewed using Mandli's Roadview Workstation. They offer a simple point and click interface tied to a GIS that allows for rapid display of the video images captured with VICS.

Prime/Ware (1600 Callowhill St, Phila, PA 19090, USA; phone: 215 561 3020, fax: 215 561 4093; contacts: Bernard Rivas, Carol Marci) is a reseller for Smallworld, ArcCAD, and TNTmips. Details on these products appear in the main portion of this report.

APPENDIX B

ADDRESSES OF 1991 BUT NOT 1993 RESPONDENTS

Addresses of 1991 but not 1993 Respondents

Aangstrom Precision Corporation
5805 E. Pickard
Mt. Pleasant, Michigan 48858
USA
Tel: 517-772-2232
Fax: 517-773-0085

Action Information (Management) Ltd.
Aston Road, Hilperton
Wiltshire BA14 7SZ, UK
Tel: 0225-777 288
Fax: 0225-751 616

DIPIX Technologies Inc.
1050 Baxter Road
Ottawa, Ontario K2C 3P1 Canada
Tel: 613-596-4942
Fax: 613-596-4914

Geotrace Technologies Inc.
1616 Glenarm Place, STE 1500
Denver, Colorado 80202 USA
Tel: 303-571-1962
Fax: 303-629-7086

Hoskyns GIS
Technology House
Victoria Road, Winchester
Hants SO23 7DU, UK

International Imaging Systems
1500 Buckeye Drive
Milpitas, California, 91702 USA
Tel: 408-432-3400
Fax: 408-433-0965

Institute for Image Processing and Computer Graphics
Wastiangasse 6
Graz, Austria A-8010
Tel: 43-316-8021
Fax: 43-316-8021-20

Laser-Scan Ltd., Science Park
Milton Rd.
Cambridge CB4 4FY, UK
Tel: 0223 420414
Fax: 0223 420044

Michigan State University - CRIES Project
302 Natural Resources
East Lansing, Michigan 48824
USA
Tel: 517-353-0793
Fax: 517-353-89994

PAMAP Technologies Corporation
301-3440 Douglas Street
Victoria, British Columbia
V87 3L5 Canada
Tel: 604 381-3838
Fax: 604 389-1134

PAFEC Limited
Strelley Village
Nottingham NG8 6PE, UK
Tel: 44 602 357055
Fax: 44 602 357057

Synercom Technology, Inc.
2500 City West Boulevard
Suite 1100
Houston, Texas 77042 USA
Tel: 713-954-7000
Fax: 713-785-0880

Terra-Mar Resource Information Services, Inc.
1937 Landings Drive
Mountain View, California
94043 USA
Tel: 415 964-6900
Fax: 415 964-5430

Unit for Housing and Urbanisation
Harvard Graduate School of Design
48 Quincy Street, Cambridge
Massachusetts 02138 USA

U.S. Army Construction Engineering Research Lab.
P.O. Box 9005
Champaign, IL 61826-9005
USA

APPENDIX C

QUESTIONNAIRE

UNITED NATIONS ENVIRONMENT PROGRAMME/GLOBAL RESOURCE INFORMATION DATABASE
GIS and Image Processing Systems Survey, 1993

Company/Organization

Name: _____ Contact: _____
Address: _____ Person(s): _____
_____ Phone: _____
_____ Fax: _____
_____ E-Mail: _____

Product Information

Product Name: _____
Type of Product: ❑ GIS ❑ Image Processing ❑ AM/FM ❑ CAD Other: _____
If GIS: ❑ Vector or ❑ Raster Based
Operating Systems Supported: ❑ UNIX ❑ PC-DOS ❑ PC-OS/2 ❑ VAX-VMS ❑ Macintosh
❑ Other: _____
If UNIX, list vendors: _____
_____
Graphics Environments Supported: ❑ X-Windows ❑ Motif ❑ Open Look ❑ Sunview
❑ Microsoft Windows ❑ Other: _____
Minimum Hardware/System Configuration: _____
_____
_____
_____
_____
Turnkey system available? ❑ Yes ❑ No (Bundled Hardware & Software)
If yes, describe: _____
_____
_____
_____
_____

Licensing/Pricing

❑ Public Domain: Costs for distribution/documentation? _____
❑ Commercial Product
Licensed by: ❑ User ❑ System ❑ Site ❑ Other: _____
License fee is: ❑ One Time Charge ❑ Recurrent every _____
Basic (minimal) software system cost: $ _____ Describe: _____
_____
_____
Complete (fully capable) software system cost: $ _____ Describe: _____
_____

Turnkey system (hardware & software) cost: $ _____ Describe: _____

_____

_____

_____

_____

Other Pricing Information: _____

_____

_____

_____

Support/Updates

Training assistance available: ❑ Courses ❑ Training Videos ❑ Tutorials

❑ Other: _____

Comments: _____

_____

_____

Software support available: ❑ Worldwide ❑ Not Available ❑ Other: _____

List supporting agencies and their phone numbers: _____

_____

_____

_____

Cost of support: ❑ Included in License ❑ $ _____ Per _____

Maintenance contract available for turnkey system? ❑ Yes ❑ No

List maintenance agencies and their phone numbers: _____

_____

_____

_____

Cost of maintenance contract: $ _____ Per _____

Software updates

Frequency: ❑ Annual ❑ Semi-annual ❑ Other: _____

Cost of updates: ❑ Included in Software License ❑ $ _____

Documentation/Interface

System documentation available as: ❑ Hardcopy ❑ Electronic Files

Number of pages: _____ Number of Volumes: _____

Languages available: _____

On-Line help: ❑ Basic ❑ Context Sensitive ❑ Hyper-Text ❑ Not Available

User Interface: ❑ Command Line ❑ Windows (Some Graphics)

❑ Full Graphical User Interface

❑ Single Screen ❑ Dual Screen

Batch capability: ❑ Yes ❑ No

User Base

Total number of installations: _____ (As of July 31, 1993)

Number of installations by continent:

North America: _____ South America: _____

Africa: _____ Asia: _____

Europe: _____ Australia: _____

Year of first installation: _____

Technical/Functional

Maximum number of users supported: _____

Input devices supported: List most common devices/formats/interfaces/etc.

- ❑ Digitizers: _____
- ❑ Scanners: _____
- ❑ Frame Grabbers: _____
- ❑ Tape: _____
- ❑ Diskette: _____
- ❑ CD-ROM: _____
- ❑ Others (e.g. GP): _____

Output devices supported: List most common devices/formats/interfaces/etc.

- ❑ Displays: _____
- ❑ Plotters: _____
- ❑ Film Recorders: _____
- ❑ Printers: _____
- ❑ Tape: _____
- ❑ Diskette: _____
- ❑ Others: _____

Exchange file formats supported: _____

System Linkages:

- ❑ Integrated DBMS: _____
- ❑ External DBMS supported: _____
- ❑ Macro language available for customizing/extending system $ _____
- ❑ Linkable libraries for data structure access $ ❑ FORTRAN ❑ C ❑ Other _____
- ❑ Source code available $ _____ ❑ FORTRAN ❑ C ❑ Other _____

GIS Functionality:

- ❑ Map Digitizing
- ❑ Digital Map Editing
- ❑ Topological Structuring
- ❑ Network Flow Analysis
- ❑ Cell-based (Raster) Modeling
- ❑ Map Composition/Generation
- ❑ Map Display & Query
- ❑ Map Projection Changes; No. Supported: _____
- ❑ Datum Changes; Datums Supported: _____
- ❑ Vector Overlay Analysis
- ❑ Surface Modeling
- ❑ Buffer generation

Other Significant Functional Areas: _____

Image Processing Functionality:

- ❑ Interactive Display
- ❑ Geometric Rectification
- ❑ Image Mosaicing
- ❑ Radiometric Corrections
- ❑ Multi-Spectral Classification
- ❑ Radar Geocoding & Analysis
- ❑ Image Enhancement
- ❑ Spatial Filtering
- ❑ Fourier Analysis
- ❑ Multivariate Analysis/Statistical Analysis
- ❑ Raster-GIS Modeling
- ❑ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: _____

Technical Features:

- ❑ Spatial index supported (e.g., quadtree); Describe: _____
- ❑ Object oriented architecture; Describe: _____
- ❑ Expert system capability; Describe: _____

Other Significant Technical Features: _____

APPENDIX D

SURVEY RESPONSES

PRODUCT NAME: ACCUGRAPH

Company/Organization

Name: Accugraph
Address: 5822 Cromo Dr.
El Paso, Texas 79912 USA

Contact Person(s): David Claudio
Phone: 915 581 1171
Fax: 915 581 3437

Product Information

Product Name: Accugraph

Type of Product: ☐ GIS ☐ Image Processing ☒ AM/FM ☐ CAD

Operating Systems Supported: ☒ UNIX ☐ PC-DOS ☐ PC-OS/2 ☐ VAX-VMS ☐ Macintosh

If UNIX, list vendors: HP, IBM, & SUN

Graphics Environments Supported: ☒ X-Windows ☒ Motif ☐ Open Look ☐ Sunview ☐ Microsoft Windows

Minimum Hardware/System Configuration: HP9000, IBMRS6000, SUN SPARC station w/16 MB RAM, 300 MB disk recommended.

Turnkey system available? ☒ Yes ☐ No (Bundled Hardware & Software)

If yes, describe: Accugraph works with third party hardware & software vendors to assemble a system configured to each specific customer need.

Licensing/Pricing

☒ Commercial Product

Licensed by: ☐ User ☐ System ☐ Site ☒ Other: Combination of system/site

License fee is: ☒ One Time Charge ☐ Recurrent every

Basic (minimal) software system cost: $5195 Describe: Core module for design/drafting. Add on modules and multi-user licensing available.

Complete (fully capable) software system cost: $Contact vendor Describe: Price dependent on number and type of licenses.

Turnkey system (hardware & software) cost: $Contact vendor Describe: Cost dependent on number and type of systems and licenses.

Other Pricing Information: Economical network licenses available for all modules.

Support/Updates

Training assistance available: ☒ Courses ☒ Training Videos ☒ Tutorials

Software support available: ☒ Worldwide ☐ Not Available

List supporting agencies and their phone numbers: Accugraph Support Department: 1 800 879 2228

Cost of support: ☐ Included in License ☒ Contact vendor - dependent on type of license

Software updates

Frequency: ☒ Annual ☐ Semi-annual

Cost of updates: ☐ Included in Software License ☒ Included in support fee

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: Varies by module Languages available: English

On-Line help: □ Basic □ Context Sensitive ■ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

User Base

Total number of installations: 10,000 (As of July 31, 1993)

Number of installations by continent:

North America: 7000 South America: 400 Africa: 200 Asia: 200

Europe: 2000 Australia: 200

Year of first installation: 1972

Technical/Functional

Maximum number of users supported: 2500

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: HP, IBM
- □ Scanners:
- □ Frame Grabbers:
- ■ Tape: HP, IBM
- ■ Diskette: HP, IBM
- ■ CD-ROM: HP, IBM

Output devices supported: List most common devices/formats/interfaces/etc.

- □ Displays:
- ■ Plotters: HP
- □ Film Recorders:
- ■ Printers: HP
- ■ Tape: HP, IBM
- ■ Diskette: HP, IBM

Exchange file formats supported: DXF, IGES, EasyData

System Linkages:

- ■ Integrated DBMS: RISE module
- ■ External DBMS supported: Oracle, Ingres, Informix, Sybase
- ■ Macro language available for customizing/extending system $Macro module - contact vendor

GIS Functionality:

- ■ Map Digitizing
- □ Digital Map Editing
- □ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- □ Map Projection Changes
- □ Datum Changes
- □ Vector Overlay Analysis
- ■ Surface Modeling
- □ Buffer generation

PRODUCT NAME: AGIS

Company/Organization

Name: Delta Data Systems, Inc.
Address: 131 Third Street
Picayune, MS 39466 USA

Contact Person(s): Ren Clark
Phone: 601-799-1813
Fax: 601-799-1827

Product Information

Product Name: AGIS - Advanced Geographic Information System
Type of Product: ☒ GIS ☒ Image Processing ☐ AM/FM ☐ CAD
If GIS: ☐ Vector or ☐ Raster Based ☒ Both
Operating Systems Supported: ☒ UNIX ☒ PC-DOS ☐ PC-OS/2 ☐ VAX-VMS ☐ Macintosh
Minimum Hardware/System Configuration: PC Version: 386/486, MSDOS, 200mb Hard Drive, Imagraph 1024x1024x32, Image Card and RGB Monitor; SGI.
Turnkey system available? ☒ Yes ☐ No (Bundled Hardware & Software)
If yes, describe: PC Version: 486-PC/AT, DOS, 200mb Hard Drive, 4mb RAM, Imagraph 1024x1024x32, VGA Monitor and Card, RGB Monitor; SGI Indigo.

Licensing/Pricing

☒ Commercial Product
Licensed by: ☒ User ☐ System ☐ Site
License fee is: ☒ One Time Charge ☐ Recurrent
Basic (minimal) software system cost: $12,600 Describe: Information available upon request
Complete (fully capable) software system cost: $12,600
Turnkey system (hardware & software) cost: $35,000 Describe: Includes 486-PC, Software and Digitizer

Support/Updates

Training assistance available: ☒ Courses ☐ Training Videos ☒ Tutorials
Software support available: ☒ Worldwide ☐ Not Available
List supporting agencies and their phone numbers: Delta Data Systems
Maintenance contract available for turnkey system? ☒ Yes ☐ No
List maintenance agencies and their phone numbers: Delta Data Systems
Cost of maintenance contract: Negotiated
Software updates
Frequency: ☒ Annual ☐ Semi-annual
Cost of updates: ☐ Included in Software License ☒ $2000 annually

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 400 Number of Volumes: 1 Languages available: English

On-Line help: □ Basic □ Context Sensitive □ Hyper-Text ■ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

□ Full Graphical User Interface

□ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 75 (As of July 31, 1993)

Number of installations by continent:

North America: 70 South America: 3 Asia: 1 Europe: 1

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Calcomp, Kurta, Altek
- ■ Scanners:
- ■ Frame Grabbers:
- ■ Tape:
- ■ Diskette:
- ■ CD-ROM:
- ■ Others (e.g. GP): GPS

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays:
- ■ Plotters: Pen Plotters, Electrostatic, Ink Jet
- ■ Film Recorders:
- ■ Printers:
- ■ Tape:
- ■ Diskette:
- ■ Others: RF Modem

Exchange file formats supported: DXF, DLG, ASCII, MOSS, TIFF, TARGA, DEM, PCX, ELAS, Gloria, etc., AVHRR

System Linkages:

- ■ Integrated DBMS: DBASE IV

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- □ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes
- ■ Datum Changes
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Conversion raster to vector

Image Processing Functionality:

- ☒ Interactive Display
- ☒ Geometric Rectification
- ☒ Image Mosaicing
- ☒ Radiometric Corrections
- ☒ Multi-Spectral Classification
- ☒ Radar Geocoding & Analysis
- ☒ Image Enhancement
- ☒ Spatial Filtering
- ☐ Fourier Analysis
- ☒ Multivariate Analysis/Statistical Analysis
- ☒ Raster-GIS Modeling
- ☒ Hardcopy Map Composition/Annotation

Technical Features:

☒ Expert system capability; Describe: Habitat Analysis

Other Significant Technical Features: Information on AGIS available from company upon request.

PRODUCT NAME: ALK-GIAP

Company/Organization

Name:	Surveying and Mapping Agency NRW	Contact:	
Address:	Muffendorfer StraBe 19-21	Person(s):	D. Birth
	53177 Bonn, Germany	Phone:	0228 846 480
		Fax:	0228 846 502

Product Information

Product Name: ALK-GIAP (as a component of the ALK/ATKIS System)

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 ■ VAX-VMS □ Macintosh

If UNIX, list vendors: Hewlett Packard, Digital Equipment, IBM, SUN, BULL, SIEMENS, MANNES'MANN-KIENZLE

Graphics Environments Supported: ■ X-Windows □ Motif □ Open Look □ Sunview □ Microsoft Windows

■ Other: GKS Level 2c

Minimum Hardware/System Configuration: Workstation

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: For detailed information contact: AED Graphics GmbH, Mallwitzstr 1-3, 53177 Bonn, Tel: 0228 95420, Fax: 0228 9542111.

Licensing/Pricing

■ Commercial Product Please contact AED Graphics GmbH.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: □ Worldwide □ Not Available ■ Other: In Germany

List supporting agencies and their phone numbers: AED Graphics GmbH

Cost of support: ■ Included in License □ $ Per

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: AED Graphics GmbH

Software updates

Frequency: ■ Annual □ Semi-annual

Cost of updates: ■ Included in Software License □ $

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Languages available: German

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line □ Windows (Some Graphics)

□ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 450 (As of July 31, 1993)

Number of installations by continent:

Europe: 450

Year of first installation: 1986

Technical/Functional

Maximum number of users supported: ALK-GIAP (single user) connected to ALK/ATKIS System (multi-user)

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: ■ Scanners:

□ Frame Grabbers: ■ Tape:

■ Diskette: ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: ■ Plotters:

■ Film Recorders: □ Printers:

■ Tape: ■ Diskette:

Exchange file formats supported: ALK/ATKIS-EDBS for vector data; TIFF for raster data

System Linkages:

■ External DBMS supported: ALK/ATKIS-DBMS

■ Macro language available for customizing/extending system $

■ Linkable libraries for data structure access $ ■ FORTRAN □ C □ Other

GIS Functionality:

■ Map Digitizing ■ Map Display & Query

■ Digital Map Editing □ Map Projection Changes; No. of Projections Supported:

□ Topological Structuring □ Datum Changes; Datums Supported:

□ Network Flow Analysis ■ Vector Overlay Analysis

□ Cell-based (Raster) Modeling □ Surface Modeling

■ Map Composition/Generation □ Buffer generation

Image Processing Functionality:

■ Interactive Display □ Image Enhancement

■ Geometric Rectification □ Spatial Filtering

□ Image Mosaicing □ Fourier Analysis

□ Radiometric Corrections □ Multivariate Analysis/Statistical Analysis

□ Multi-Spectral Classification □ Raster-GIS Modeling

□ Radar Geocoding & Analysis □ Hardcopy Map Composition/Annotation

PRODUCT NAME: ALLIANCE

Company/Organization

Name:	Icare International	Contact:	Director
Address:	Bat. Prologue	Person(s):	Coullet Didier
	BP 2736	Phone:	33 61 39 03 13
	31312 Labege Cedex, France	Fax:	33 61 39 25 34

Product Information

Product Name: ALLIANCE

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
■ Microsoft Windows ■ Other: Windows NT

Minimum Hardware/System Configuration: PC 486/33 RAM: 8 MB Disk: 200 MB; Windows 3.1

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: Alliance 1.0 + Win 3.1; Compay Deskpro 486/i 8 MB RAM 240 MB disk; Display ocē graphics 17"; Digitizers ocē graphics; Plotters ocē graphics A1.

Licensing/Pricing

■ Commercial Product
Licensed by: ■ User □ System □ Site
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $5000 Describe: Alliance 1.0 Basic version
Complete (fully capable) software system cost: $15,000 Describe: Basic version + DTM functions + image processing functions + Macro language.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials
Comments: Courses: 3 days/4 users

Software support available: ■ Worldwide □ Not Available □ Other:
Cost of support: ■ Included in License

Maintenance contract available for turnkey system? ■ Yes □ No
Cost of maintenance contract: $500 per system

Software updates
Frequency: □ Annual ■ Semi-annual □ Other:
Cost of updates: ■ Included in Software License □ $

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files
Number of pages: 400 Number of Volumes: 2 Languages available: French and English

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

☒ Full Graphical User Interface

☒ Single Screen ☐ Dual Screen

Batch capability: ☐ Yes ☒ No

User Base

Total number of installations: 20 (As of July 31, 1993)

Number of installations by continent:

Africa: 3 Europe: 17

Year of first installation: 1992

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

☒ Digitizers: ☒ Scanners:

☐ Frame Grabbers: ☐ Tape:

☒ Diskette: ☒ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

☒ Displays: ☒ Plotters:

☒ Film Recorders: ☒ Printers:

☐ Tape: ☒ Diskette:

Exchange file formats supported: DXF, Export Arc/Info, TIFF, SPOT, GEOSPOT, dBASE, Excel, Paradox

System Linkages:

☒ Integrated DBMS: dBase, Paradox

☒ External DBMS supported: Oracle V.6.Ø

☒ Macro language available for customizing/extending system $5000

GIS Functionality:

☒ Map Digitizing ☒ Map Display & Query

☒ Digital Map Editing ☒ Map Projection Changes; No. Supported:

☒ Topological Structuring ☐ Datum Changes; Datums Supported:

☐ Network Flow Analysis ☒ Vector Overlay Analysis

☒ Cell-based (Raster) Modeling ☐ Surface Modeling

☒ Map Composition/Generation ☒ Buffer generation

Other Significant Functional Areas: Multi-dates functionality

Image Processing Functionality:

☒ Interactive Display ☒ Image Enhancement

☒ Geometric Rectification ☒ Spatial Filtering

☒ Image Mosaicing ☐ Fourier Analysis

☒ Radiometric Corrections ☐ Multivariate Analysis/Statistical Analysis

☒ Multi-Spectral Classification ☒ Raster-GIS Modeling

☐ Radar Geocoding & Analysis ☒ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Vector filtering

Technical Features:

☒ Spatial index supported (e.g., quadtree); Describe:

PRODUCT NAME: ARC/INFO, PC ARC/INFO, ARCCAD, ARCVIEW

Company/Organization

Name:	Environmental Systems Research Institute	Contact:	Marketing Department
Address:	380 New York Street	Person(s):	Kevin Daugherty
	Redlands, CA 92373 USA	Phone:	909 793 2853
		Fax:	909 793 5953
		E-Mail:	kdaugherty@esri.com

Product Information

Product Name: ARC/INFO, PC ARC/INFO, ArcCAD, ArcView

Type of Product: ■ GIS □ Image Processing ■ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based (with optional GRID product)

Operating Systems Supported: ■ UNIX ■ PC-DOS □ PC-OS/2 ■ VAX-VMS ■ Macintosh

If UNIX, list vendors: Data General, Digital Equipment Corp., Hewlett-Packard, IBM, Silicon Graphics, SUN Microsystems

Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look □ Sunview ■ Microsoft Windows

Minimum Hardware/System Configuration: ARC/INFO: 32 MB RAM, 1 GB disk storage, color card and monitor; PC ARC/INFO: 286 CPU, Math Coprocessor, 1 MB RAM, 100 MB disk storage; ArcCAD: 386 CPU, Math Coprocessor, 8 MB RAM, 100 MB disk storage; ArcView: 386 CPU, Math Coprocessor, 8 MB RAM, 100 MB disk storage.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: ESRI provides custom integration services.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User ■ System □ Site ■ Other: Total number of concurrent sessions on a single network.

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $500-1000 Describe: ArcView for MS Windows

Complete (fully capable) software system cost: $6000 - 12,000 Describe: PC ARC/INFO 6-Module bundle

Turnkey system (hardware & software) cost: $ Varies

Other Pricing Information: Written quotations can be obtained by calling ESRI's U.S. regional offices or international distributors.

Support/Updates

Training assistance available: ■ Courses ■ Training Videos ■ Tutorials

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: ESRI - Redlands (909) 793 3774; for technical support outside the U.S., call your international distributor.

Cost of support: □ Included in License ■ $ Varies

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: Varies by configuration

Cost of maintenance contract: $ Varies

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: At least annual

Cost of updates: □ Included in Software License ■ $Included with support fee

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: Over 5000 Number of Volumes: Over 50 (all products)

Languages available: English (all documentation); all major languages (selected volumes and foreign language supplements).

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 45,000 (As of December 31, 1992)

Number of installations by continent:

North America: 35,370 Asia: 2,790 Europe: 11,880 Rest of world: 2,565

Year of first installation: 1981

Technical/Functional

Maximum number of users supported: Unlimited

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers:Altek, CalComp, Digicom, GTCO, Houston Instruments, IBM, Kurta, Numonics, Summagraphics, Talos, Tektronix

■ Scanners: Supported Image Formats

■ Frame Grabbers: Platform dependent

■ Tape: Standard media according to hardware platform: 1/4", 8mm, TK-50, DAT

■ Diskette: Standard media: 3 1/2" or 5 1/4"

■ CD-ROM: Standard interface

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: UNIX workstation: manufacturer's standard color display
PC-based products: VGA, Super VGA, and other Windows-supported options

■ Plotters: CalComp, Hewlett-Packard, IBM, Zeta, Versatec, Raster Graphics, all PostScript devices

■ Film Recorders: Standard interface

■ Printers: Hardware dependent

■ Tape: Standard media according to hardware platform: 1/4", 8mm, TK-50, DAT

■ Diskette: Standard media: 3 1/2" or 5 1/4"

Exchange file formats supported: Contact company for more information

System Linkages:

- ■ Integrated DBMS: Henco INFO
- ■ External DBMS supported: Intel-based products: dBASE III+ and V; UNIX product: ORACLE, Informix, INGRES, SYBASE; VAX VMS: Rdb, ORACLE, INGRES, SYBASE
- ■ Macro language available for customizing/extending system $ Included with base system
- ■ Linkable libraries for data structure access $Varies ■ FORTRAN ■ C □ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: Over 40
- ■ Datum Changes; Datums Supported: Over 200
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Dynamic Segmentation, Coordinate Geometry, CAD/GIS integration,Raster/vector integration, Feature-oriented Data Editing and Management, Scan Digitizing (automated line following).

Image Processing Functionality:

- □ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- □ Image Enhancement
- ■ Spatial Filtering
- □ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: Contact company for more information.

PRODUCT NAME: ATLAS GIS

Company/Organization

Name:	Scientific Software Group	Contact:	Susan Hardy
Address:	PO Box 23041	Person(s):	
	Washington, D.C. 20026-3041	Phone:	703 620 9214
	USA	Fax:	703 620 6793

Product Information

Product Name: Atlas GIS

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: □ Vector or □ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Minimum Hardware/System Configuration: IBM PC or compatible with 640K RAM, hard disk, VGA or EGA graphics card and adaptor, and mouse.

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User ■ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $2600

Complete (fully capable) software system cost: $2600

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: ■ Worldwide □ Not Available

Cost of support: □ Included in License ■ $ Per

Maintenance contract available for turnkey system? □ Yes ■ No

Software updates

Frequency: □ Annual ■ Semi-annual

Cost of updates: □ Included in Software License ■ Minimal cost

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 600 Number of Volumes: 1 Languages available: English, French

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

□ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: Approximately 1000 (As of July 31, 1993)

Year of first installation: 1986

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers:
- ■ Scanners:
- □ Frame Grabbers:
- ■ Tape:
- ■ Diskette:
- □ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays:
- ■ Plotters:
- □ Film Recorders:
- ■ Printers:
- ■ Tape:
- ■ Diskette:

System Linkages:

- ■ Integrated DBMS

GIS Functionality:

- ■ Map Digitizing
- ■ Map Display & Query
- ■ Digital Map Editing
- ■ Map Projection Changes; No. of Projections

Supported:

- ■ Topological Structuring
- ■ Datum Changes; Datums Supported:
- ■ Network Flow Analysis
- ■ Vector Overlay Analysis
- ■ Cell-based (Raster) Modeling
- ■ Surface Modeling
- ■ Map Composition/Generation
- □ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Image Enhancement
- ■ Geometric Rectification
- □ Spatial Filtering
- □ Image Mosaicing
- □ Fourier Analysis
- □ Radiometric Corrections
- □ Multivariate Analysis/Statistical Analysis
- □ Multi-Spectral Classification
- ■ Raster-GIS Modeling
- □ Radar Geocoding & Analysis
- ■ Hardcopy Map Composition/Annotation

PRODUCT NAME: GWN-GIS

Company/Organization

Name:	Scientific Software Group	Contact:	Susan Hardy
Address:	PO Box 23041	Person(s):	
	Washington, D.C. 20026-3041	Phone:	703 620 9214
	USA	Fax:	703 620 6793

Product Information

Product Name: GWN-GIS

Type of Product: ☒ GIS ☐ Image Processing ☐ AM/FM ☐ CAD

Operating Systems Supported: ☒ UNIX ☒ PC-DOS ☐ PC-OS/2 ☐ VAX-VMS ☒ Macintosh

If UNIX, list vendors: SUN, Apollo, Intergraph Workstation

Graphics Environments Supported: ☐ X-Windows ☐ Motif ☐ Open Look ☐ Sunview

☐ Microsoft Windows ☒ Other: Intergraph Microstation

Minimum Hardware/System Configuration: IBM PC-386/486 or compatible, with 4 MB RAM and hard drive. EGA or VGA monitor and card.

Turnkey system available? ☐ Yes ☒ No (Bundled Hardware & Software)

Licensing/Pricing

☒ Commercial Product

Licensed by: ☒ User ☒ System ☒ Site

License fee is: ☒ One Time Charge ☐ Recurrent every

Basic (minimal) software system cost: $4000

Complete (fully capable) software system cost: $4000

Other Pricing Information: Needs Intergraph Microstation ($3,400)

Support/Updates

Training assistance available: ☒ Courses ☐ Training Videos ☒ Tutorials

Software support available: ☒ Worldwide ☐ Not Available

Cost of support: ☒ Included in License ☐ $ Per

Maintenance contract available for turnkey system? ☐ Yes ☒ No

Software updates

Frequency: ☐ Annual ☒ Semi-annual

Cost of updates: ☐ Included in Software License ☒ $300

Documentation/Interface

System documentation available as: ☒ Hardcopy ☐ Electronic Files

Number of pages: 250 Number of Volumes: 1 Languages available: Japanese, English

On-Line help: ☐ Basic ☒ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)
☒ Full Graphical User Interface
☒ Single Screen ☒ Dual Screen
Batch capability: ☒ Yes ☐ No

User Base

Total number of installations: 300 (As of July 31, 1993)
Year of first installation: 1988

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

☒ Digitizers	☒ Scanners
☒ Frame Grabbers	☒ Tape
☒ Diskette	☐ CD-ROM

Output devices supported: List most common devices/formats/interfaces/etc.

☒ Displays	☒ Plotters
☐ Film Recorders	☒ Printers
☒ Tape	☒ Diskette

System Linkages:
☒ Integrated DBMS: Informix & DBase III Plus
☒ External DBMS supported: Same
☒ Linkable libraries for data structure access $ ☒ FORTRAN ☐ C ☐ Other

GIS Functionality:

☒ Map Digitizing	☒ Map Display & Query
☒ Digital Map Editing	☒ Map Projection Changes; No. Supported:
☒ Topological Structuring	☐ Datum Changes; Datums Supported:
☐ Network Flow Analysis	☒ Vector Overlay Analysis
☒ Cell-based (Raster) Modeling	☐ Surface Modeling
☒ Map Composition/Generation	☒ Buffer generation

Image Processing Functionality:

☐ Interactive Display	☐ Image Enhancement
☐ Geometric Rectification	☒ Spatial Filtering
☐ Image Mosaicing	☐ Fourier Analysis
☐ Radiometric Corrections	☐ Multivariate Analysis/Statistical Analysis
☐ Multi-Spectral Classification	☐ Raster-GIS Modeling
☐ Radar Geocoding & Analysis	☒ Hardcopy Map Composition/Annotation

PRODUCT NAME: CADCORE TRACER & RECOGNIZER

Company/Organization

Name:	Information & Graphics Systems	Contact:	Sales Department
Address:	2511 55th Street	Person(s):	Keith Hicks
	Building C	Phone:	303 449 1110, Ext. 164
	Boulder, CO 80301 USA	Fax:	303 449 1298

Product Information

Product Name: CADCore Tracer & Recognizer and Tracer & Recognizer for AutoCAD

Type of Product: ☐ GIS ☒ Image Processing ☒ AM/FM ☒ CAD
☒ Other: Raster/vector conversion
If GIS: ☒ Vector or ☒ Raster Based

Operating Systems Supported: ☒ UNIX ☒ PC-DOS ☐ PC-OS/2 ☐ VAX-VMS ☐ Macintosh
☒ Other: Windows
If UNIX, list vendors: SUN, HP, DEC

Graphics Environments Supported: ☒ X-Windows ☒ Motif ☒ Open Look ☐ Sunview
☒ Microsoft Windows

Minimum Hardware/System Configuration: 386 w/Co processor, 8 MB Ram

Turnkey system available? ☒ Yes ☐ No (Bundled Hardware & Software)
If yes, describe: We provide stand alone software or complete turnkey systems with all necessary hardware and software.

Licensing/Pricing

☒ Commercial Product
Licensed by: ☒ User ☒ System ☒ Site
License fee is: ☒ One Time Charge (Annual support with upgrade optional
Basic (minimal) software system cost: $2500
Complete (fully capable) software system cost: $2500 Up Describe: Minimum complete system is $2500. Other optional modules available based on customer need.
Turnkey system (hardware & software) cost: $Varies Describe: Cost is dependent on customer need and configuration.
Other Pricing Information: Call for pricing information, Keith Hicks, 303 449 1110, ext. 164.

Support/Updates

Training assistance available: ☒ Courses ☐ Training Videos ☒ Tutorials ☒ Other:

Software support available: ☒ Worldwide ☐ Not Available
List supporting agencies and their phone numbers: 90 days (included) is software extended support.
Cost of support: ☒ Included in License ☒ 15% of selling price per year

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: IGS: 1 800 IGS INFO

Cost of maintenance contract: 15% of list per year

Software updates

Frequency: ■ Annual □ Semi-annual ■ Other

Cost of updates: □ Included in Software License ■ Minor upgrades included in cost of software. Major upgrades included in annual support.

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: □ Yes ■ No

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: Calcomp, Hitachi, Summagraphics

■ Scanners: CONTEX, VIDAR, Anatech, Tangent

□ Frame Grabbers

■ Tape: 1/4", 8mm, 4mm

■ Diskette: 3 1/2", 5 1/4"

□ CD-ROM

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: VGA, SVGA, XVGA

■ Plotters: Calcomp, Hewlett Packard, OCE, Houston Instrument, Versatec, JDL

□ Film Recorders:

■ Printers: Hewlett Packard

■ Tape: 1/4", 8mm, 4mm

■ Diskette: 3 1/2", 5 1/4"

Exchange file formats supported: DXF, DWG, DGN, DRW

System Linkages:

■ External DBMS supported: Oracle

■ Macro language available for customizing/extending system (included)

GIS Functionality:

■ Map Digitizing	□ Map Display & Query
■ Digital Map Editing	□ Map Projection Changes; No. Supported:
□ Topological Structuring	□ Datum Changes; Datums Supported:
□ Network Flow Analysis	■ Vector Overlay Analysis
□ Cell-based (Raster) Modeling	□ Surface Modeling
□ Map Composition/Generation	□ Buffer generation

Other Significant Functional Areas: Raster editing, vector editing and raster to vector conversion. Semi-automatic & automatic conversion text recognition.

Image Processing Functionality:

- ☐ Interactive Display
- ☐ Geometric Rectification
- ☐ Image Mosaicing
- ☐ Radiometric Corrections
- ☐ Multi-Spectral Classification
- ☐ Radar Geocoding & Analysis
- ☒ Image Enhancement
- ☐ Spatial Filtering
- ☐ Fourier Analysis
- ☐ Multivariate Analysis/Statistical Analysis
- ☐ Raster-GIS Modeling
- ☐ Hardcopy Map Composition/Annotation

PRODUCT NAME: CEAL/CEMAP/COGO

Company/Organization

Name:	CLM/Systems, Inc.	Contact:	C. L. Miller
Address:	5601 Mariner Drive	Person(s):	Donald Clark
	Suite 400	Phone:	813 286 8755
	Tampa, FL 33609 USA	Fax:	813 286 8993

Product Information

Product Name: CEAL/CEMAP/COGO

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

Operating Systems Supported: ■ UNIX ■ PC-DOS ■ PC-OS/2 ■ VAX-VMS □ Macintosh

If UNIX, list vendors: HP, IBM (AIX)

Graphics Environments Supported: ■ X-Windows □ Motif □ Open Look □ Sunview □ Microsoft Windows

Minimum Hardware/System Configuration: 486/586 PC with 12 MB Memory, 100 MB hard disk, graphics

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Fully configured PC with software installed. Options: plotter, digitizer, laser printer.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User ■ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $ Volume pricing - contact vendor

Complete (fully capable) software system cost: $ Volume pricing - contact vendor

Turnkey system (hardware & software) cost: $ Volume pricing - contact vendor

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: ■ Worldwide □ Not Available □ Other:

List supporting agencies and their phone numbers: CLM/Systems, Inc. 813 286 8755

Cost of support: ■ Included in License □ $ Per

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: CLM/Systems, Inc. 813 286 8755

Software updates

Frequency: □ Annual ■ Semi-annual □ Other:

Cost of updates: ■ Included in Software License □ $

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 1000+ Number of Volumes: 5+

Languages available: Commands - English; Prompts - any language

On-Line help: ■ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 2000+ (As of July 31, 1993)

Number of installations by continent:

North America: 2000+

Year of first installation: 1985

Technical/Functional

Maximum number of users supported: 5000+

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: □ Scanners:

□ Frame Grabbers: ■ Tape:

■ Diskette: ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: ■ Plotters:

□ Film Recorders: ■ Printers:

■ Tape: ■ Diskette:

Exchange file formats supported: DXF, DGN, IDGS, CEAL

System Linkages:

■ Integrated DBMS:

■ External DBMS supported:

■ Macro language available for customizing/extending system $

GIS Functionality:

■ Map Digitizing ■ Map Display & Query

■ Digital Map Editing ■ Map Projection Changes; No. Supported:

□ Topological Structuring ■ Datum Changes; Datums Supported:

□ Network Flow Analysis ■ Vector Overlay Analysis

□ Cell-based (Raster) Modeling ■ Surface Modeling

■ Map Composition/Generation □ Buffer generation

Other Significant Functional Areas: COGO - CoOrdinate GeOmetry

Image Processing Functionality:

■ Interactive Display □ Image Enhancement

■ Geometric Rectification □ Spatial Filtering

□ Image Mosaicing □ Fourier Analysis

□ Radiometric Corrections □ Multivariate Analysis/Statistical Analysis

□ Multi-Spectral Classification □ Raster-GIS Modeling

□ Radar Geocoding & Analysis ■ Hardcopy Map Composition/Annotation

PRODUCT NAME: CHIPS

Company/Organization

Name: Institute of Geography
Address: University of Copenhagen
Øster Voldgade 10
DK-1350 Copenhagen K
Denmark

Contact: Henrik Steen Andersen
Person(s): Jens Grundtmann
Phone: 45 35 32 25 24
Fax: 45 35 32 25 01
E-Mail: CHIPS@GEOGR.KU.DK

Product Information

Product Name: CHIPS

Type of Product: ☐ GIS ☒ Image Processing ☐ AM/FM ☐ CAD

Operating Systems Supported: ☐ UNIX ☒ PC-DOS ☐ PC-OS/2 ☐ VAX-VMS ☐ Macintosh

Graphics Environments Supported: ☐ X-Windows ☐ Motif ☐ Open Look ☐ Sunview
☐ Microsoft Windows ☒ Other: Hardware dependent, No. 9 revolution, Image 32 Imagraph

Minimum Hardware/System Configuration: VGA monitor, 386/87 PC with VGA, 100 MB hard drive, 3 button mouse, No 9 revolution display adapter, 14" RGB monitor, DOS 5.0.

Turnkey system available? ☐ Yes ☒ No (Bundled Hardware & Software)

Licensing/Pricing

☒ Public Domain: Costs for distribution/documentation? 680 DKR

Support/Updates

Training assistance available: ☒ Courses ☐ Training Videos ☐ Tutorials

Software support available: ☐ Worldwide ☐ Not Available ☒ Other: Questions answered by phone or e-mail.

Software updates
Frequency: ☐ Annual ☐ Semi-annual ☒ Other: When new/corrected version is available.

Documentation/Interface

System documentation available as: ☒ Hardcopy ☐ Electronic Files
Number of pages: 250 Number of Volumes: 1 Languages available: English (French, Spring 94)

On-Line help: ☒ Basic ☐ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ☒ Command Line ☒ Windows (Some Graphics)
☐ Full Graphical User Interface
☐ Single Screen ☒ Dual Screen

Batch capability: ☒ Yes ☐ No

User Base

Total number of installations: 60 (As of July 31, 1993)

Number of installations by continent:

North America: 2 South America: 2 Africa: 3 Asia: 1 Europe: 54

Year of first installation: 1987

Technical/Functional

Maximum number of users supported: Unlimited

Input devices supported: List most common devices/formats/interfaces/etc.

- ☒ Digitizers: Via Targa
- ☒ Scanners: Via Targa
- ☐ Frame Grabbers:
- ☒ Tape: VID HD
- ☒ Diskette:
- ☒ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ☒ Displays: Imagraph Image 32; No 9 Revolution
- ☒ Plotters: PS compatible
- ☒ Film Recorders: Targa
- ☒ Printers: PS
- ☐ Tape:
- ☒ Diskette: DOS

Exchange file formats supported: TARGA, ERDAS, IDRISI, ARC/INFO (vector)

Image Processing Functionality:

- ☒ Interactive Display
- ☒ Geometric Rectification
- ☒ Image Mosaicing
- ☒ Radiometric Corrections
- ☒ Multi-Spectral Classification
- ☐ Radar Geocoding & Analysis
- ☒ Image Enhancement
- ☒ Spatial Filtering
- ☐ Fourier Analysis
- ☒ Multivariate Analysis/Statistical Analysis
- ☐ Raster-GIS Modeling
- ☒ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: NOAA and METEOSAT specific routines, image texture, segmentation, display and eidting of Arc/Info vectors.

Technical Features:

- ☒ Expert system capability; Describe: Segment classification

Other Significant Technical Features: Can be installed on network server; new version will run in protected mode (Spring 94).

PRODUCT NAME: DIGIT-II, GIMMS

Company/Organization

Name:	GIMMS (GIS) Limited	Contact:	Marlene Ferenth
Address:	30 Keir Street	Person(s):	Anne Carruthers
	Edinburgh EH3 9E4	Phone:	031 668 3046
	Scotland, UK	Fax:	031 668 2104

Product Information

Product Name: DIGIT-II Digitizing Package + GIMMS Mapping & Graphics Package

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS □ PC-OS/2 ■ VAX-VMS □ Macintosh

If UNIX, list vendors: GIMMS available for a number of UNIX platforms as well as being supplied as generic UNIX.

Graphics Environments Supported: ■ X-Windows □ Motif □ Open Look ■ Sunview ■ Microsoft Windows ■ Other: DIGIT-II for DOS and Windows

Minimum Hardware/System Configuration: DIGIT-II: PC-IBMPC (or clone) EGA/VGA graphics screen, 640K memory and Microsoft compatible mouse; GIMMS: PC-PC/AT (286, 386, or 486) floating point coprocessor (287, 387, 487) 2 MB extended memory, MS-DOS 3.3 or above, Microsoft comp. mouse.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: We can provide a tailored front end to our products to suit user requirments - as we sell products individually and therefore can combine them in a number of ways.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System ■ Site ■ Other: DIGIT-II user; GIMMS site, GIMMS-PC user

License fee is: ■ One Time Charge DIGIT-II + GIMMS-PC ■ Recurrent every year for GIMMS

Basic (minimal) software system cost: $ Describe: GIMMS-PC: $1400 + optional maintenance at $300 P.A.; DIGIT-II: $1400; GIMMS for multi-user platforms; cost depends on nature of organization: $2800 commercial; $1400 non-profit.

Complete (fully capable) software system cost: $2800 Describe: Including DIGIT-II and GIMMS-PC; we also market other GIS related software; these are priced separately and can be purchased if required.

Turnkey system (hardware & software) cost: $N/A Describe: Cost would depend on software components required and degree of tailoring.

Other Pricing Information: Price lists and details of all our products and consultancy service can be obtained from GIMMS (GIS) LTD. (*Costs are approximate, depending on $ exchange rate.)

Support/Updates

Training assistance available: ■ Courses ■ Training Videos □ Tutorials

Comments: Courses tailored to suit site requirements, from introductory to advanced, as well as application specific.

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: GIMMS (GIS) Limited Software support service tel: 031 556 1215; fax: 031 668 2104

Cost of support: ■ Included in License GIMMS multi-user ■ $300 GIMMS-PC Per year

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: See above

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: At least once P.A. but frequency depends on development.

Cost of updates: ■ Included in GIMMS Multi-User Software License + included in support for GIMMS-PC

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: +600 Number of Volumes: 1 Ref. Manual, 12 Guides

Languages available: English

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line GIMMS command line + menu system; DIGIT II menu driven

□ Windows (Some Graphics) □ Full Graphical User Interface

Batch capability: ■ Yes GIMMS □ No

User Base

Total number of installations: 400+ (As of July 31, 1993)

Number of installations by continent:

Europe: 350

Year of first installation: 1980

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: DIGIT-II: Calcomp, Summagraphics, TDS; DIGIT-II can be configured for any digitizer

□ Scanners:

□ Frame Grabbers:

□ Tape:

□ Diskette:

□ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: EGA, VGA, Hi-Res
- ■ Plotters: Hewlett-Packard, Calcomp + various others (contact GIMMS (GIS) Ltd.
- □ Film Recorders:
- ■ Printers: Postscript, Hewlett-Packard, + various others (contact GIMMS (GIS) Ltd.
- □ Tape:
- □ Diskette

Exchange file formats supported: DIGIT-II: GIMMS, Arc/Info, SPANS, DXF; GIMMS: NTF, ASCII, SASPAC

System Linkages:

- ■ Integrated DBMS:
- ■ Macro language available GIMMS/GIMMS-PC for customizing/extending system $No additional cost
- ■ Source code available GIMMS Multi-user at no additional cost ■ FORTRAN □ C

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- □ Map Projection Changes; No. Supported:
- □ Datum Changes; Datums Supported:
- □ Vector Overlay Analysis
- □ Surface Modeling
- □ Buffer generation

Other Significant Functional Areas: DIGIT-II allows data to be recorded as layers and combinded on-screen during digitizing. Roads, rivers, towns, boundaries, etc., can all be recorded at the same time and structured to form different layers. GIMMS incorporates a range of spatial searching routines or point in-polygon, angular searching, linear searching, etc., and contour mapping.

PRODUCT NAME: DISIMP

Company/Organization

Name:	Clough Engineering	Contact:	Glenn Charlesworth
Address:	627 Chapel Street	Person(s):	
	Melbourne	Phone:	+61 3 825 5555
	Victoria 3141 Australia	Fax:	+61 3 826 6463

Product Information

Product Name: DISIMP

Type of Product: ☐ GIS ☒ Image Processing ☐ AM/FM ☐ CAD

Operating Systems Supported: ☒ UNIX ☐ PC-DOS ☐ PC-OS/2 ☐ VAX-VMS ☐ Macintosh

If UNIX, list vendors: HP, SUN

Graphics Environments Supported: ☐ X-Windows ☒ Motif ☒ Open Look ☐ Sunview ☐ Microsoft Windows

Minimum Hardware/System Configuration: Any SPARC station, HP 700 Series or a PC capable of running the SUN Solaris operating system.

Turnkey system available? ☒ Yes ☐ No (Bundled Hardware & Software)

If yes, describe: We can provide hardware, software, training for both operating system and DISIMP.

Licensing/Pricing

☒ Commercial Product

Licensed by: ☒ User ☒ System ☒ Site ☒ Other: Organization

License fee is: ☒ One Time Charge ☐ Recurrent

Basic (minimal) software system cost: $6000 (US) Describe: Fully functional run time version

Complete (fully capable) software system cost: $6,000 (U.S.) Describe: Complete remote sensing/image processing system capable of handling large datasets, with an easy-to-use graphics environment, with the added benefit of an intelligent batching facility.

Other Pricing Information: Two optional products: 1) Batching - user configurable with overiding input ($3000 US), and 2) Developers version for developing application modules ($6000 US).

Support/Updates

Training assistance available: ☒ Courses ☐ Training Videos ☐ Tutorials

Software support available: ☒ Worldwide ☐ Not Available

Cost of support: ☐ Included in License ☒ $3000 per year

Maintenance contract available for turnkey system? ☒ Yes ☐ No

Software updates

Frequency: ☐ Annual ☐ Semi-annual ☒ Other: Minimum four per year

Cost of updates: ☐ Included in Software License ☒ $

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 700 Number of Volumes: 2 Languages available: English

On-Line help: ■ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line □ Windows (Some Graphics)

□ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 100 (As of July 31, 1993)

Number of installations by continent:

Asia: 10 Europe: 20 Australia: 70

Year of first installation: 1985

Technical/Functional

Maximum number of users supported: No limit

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers
- □ Frame Grabbers
- ■ Diskette
- ■ Scanners
- ■ Tape
- ■ CD-ROM

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays
- ■ Film Recorders
- ■ Tape
- ■ Plotters
- ■ Printers
- ■ Diskette

Exchange file formats supported: Extensive list. Additional formats added by user request.

System Linkages:

- ■ Macro language available for customizing/extending system $3000 US
- ■ Linkable libraries for data structure access $6000 US ■ FORTRAN ■ C □ Other
- ■ Source code available $POA ■ FORTRAN ■ C

GIS Functionality:

- ■ Map Digitizing
- □ Digital Map Editing
- □ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- □ Map Display & Query
- ■ Map Projection Changes; No. Supported: 72
- ■ Datum Changes; Datums Supported: User specified
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- □ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ■ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Technical Features: Spreadsheet style interface for Kernel, which accepts complex mathematical formula for both spatial and spectral operations.

PRODUCT NAME: DRAGON

Company/Organization

Name:	Goldin-Rudahl Systems	Contact:	Kurt T. Rudahl
Address:	6 University Drive, #213	Person(s):	(Dr.) Sally E. Coldin
	Amherst, MA 01002 USA	Phone:	413 253 7340
		Fax:	413 549 6401
		E-Mail:	3086210@mcimail.com

Product Information

Product Name: DRAGON/ips Image Processing System

Type of Product: □ GIS ■ Image Processing □ AM/FM □ CAD

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
□ Microsoft Windows ■ Other: DOS

Minimum Hardware/System Configuration: IBM PC or better with at 2 MB RAM, hard disk, printer port, graphics board.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: Configured to customer specifications.

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $995 Describe: Educational/GSA price includes all standard functionality for single user on one PC; includes limited technical support.

Complete (fully capable) software system cost: $995 Describe: There is no distinction between "basic" and "full".

Turnkey system (hardware & software) cost: $ Describe: Configured to customer specification, so price varies.

Other Pricing Information: Auxiliary data converstion libraries available on a per-site basis at $250 each.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Comments: Training courses designed per customer specification. Tutorials/classroom exercise sets include sample data sets.

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: By Goldin-Rudahl Systems or local distributor

Cost of support: ■ Included in License □ $ Per

Maintenance contract available for turnkey system? □ Yes □ No per contract

Software updates

Frequency: ☐ Annual ☐ Semi-annual ■ Other: As needed (typcially major rev/2 years)

Cost of updates: ☐ Included in Software License ■ $250 per site

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 450 approx. Number of Volumes: 1

Languages available: Printed in English; on-line HELP and menus are various

On-Line help: ☐ Basic ■ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ■ Windows (Some Graphics)

☐ Full Graphical User Interface

■ Single Screen ■ Dual Screen Either, depending on graphics board

Batch capability: ■ Yes ☐ No

User Base

Total number of installations: System/sites = 491/186 (As of July 31, 1993)

Number of installations by continent:

North America: 109/66 South America: 7/6 Africa: 17/7 Asia: 98/27

Europe: 227/64 Australia: 33/16

Year of first installation: 1988

Technical/Functional

Maximum number of users supported: 1 per computer

Input devices supported: List most common devices/formats/interfaces/etc.

☐ Digitizers:

■ Scanners: Direct: HP color and gray; via intermediate file: all

■ Frame Grabbers: Direct: Targa; via intermediate files: most popular units

■ Tape: Exabyte, 8mm (requires SCSI (ASPI) controller; EOSAT FAST format, formats from SPOT, ESA, Australia, etc.

■ Diskette: EOSAT, SPOT, Erdas, EPPL7, DXF, TIFF, others

■ CD-ROM: SPOT

■ Others (e.g. GP): LAN

Output devices supported: List most common devices/formats/interfaces/etc.

■ Display: VGA and SuperVGA, Targa, TIGA (including Hercules Graphics station) Number 9, 8514/A, XGA

☐ Plotters:

■ Film Recorders: via intermediate .EPS files, Targa files

■ Printers: Direct: HP, Tektronics, Epson, others; indirect: via PostScript, PCX, Targa files

☐ Tape:

■ Diskette: Erdas, generic binary, EPPL7, DXF, TIFF, DPS, PCX, TARGA, others

■ Others: LAN

Exchange file formats supported: Tape: FAST (EOSAT), SFF (ESA, Australia, etc.); CDROM: SPOT; Disk: EOSAT, SPOT, ERDAS, EPPL7, DXF, EPS

System Linkages:

- ■ Macro language available for customizing/extending system $ Included
- ■ Linkable libraries for data structure access $250 □ FORTRAN ■ C □ Other

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- □ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Principal components analysis; on-screen ("heads up") digitizing; image measurement (interactive).

Technical Features:

Other Significant Technical Features: Can exchange data files with raster and vector GIS products; menu system definition can be internationalized (translated) without code revision; provides core image processing functionality on very inexpensive hardware (including full-color display).

PRODUCT NAME: EASI/PACE

Company/Organization

Name: PCI Enterprises
Address: 50 West Wilmot Street
Suite 100E
Richmond Hill, Ontario L4B 1M5
Canada

Contact Person(s): Mike Pastushak
Phone: 416 764 0614
Fax: 416 764 9604

Product Information

Product Name: EASI/PACE

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: □ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS ■ PC-OS/2 ■ VAX-VMS ■ Macintosh ■ Other: SCO-UNIX, Windows NT, Windows 3.1

If UNIX, list vendors: All vendors

Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look □ Sunview ■ Microsoft Windows

Minimum Hardware/System Configuration: PC (VGA card, 2 MB RAM, co-processor); UNIX Workstation (color display, 16 MB RAM).

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: EASI/PACE bundled with PC, UNIX workstation, VMS computer.

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $4,000 Describe: Remote sensing kit: Database management, viewing tools, geometric correction, classification, vector utilities, GIS links.

Complete (fully capable) software system cost: $30,000 Describe: A complete set of remote sensing and raster GIS tools encompassing over 500 programs.

Turnkey system (hardware & software) cost: Depends on hardware

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Comments: User and programmer traning courses. Tutorials and training data sets available.

Software support available: ■ Worldwide □ Not Available

Cost of support: □ Included in License □ $3000 per year

Maintenance contract available for turnkey system? □ Yes ■ No

List maintenance agencies and their phone numbers: Hardware maintenance provided by hardware vendors.

Software updates

Frequency: ■ Annual □ Semi-annual

Cost of updates: ■ Included in Software support fee

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 3,000 Number of Volumes: 20 Languages available: English

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: +1000 (as of July 31, 1993)

Year of first installation: 1982

Technical/Functional

Maximum number of users supported: No limit

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: IBM, Summagraphics, Calcomp, Altek, Gentian
- ■ Scanners: All which produce files in standard formats such as TIFF
- ■ Frame Grabbers: All which produce files in standard formats such as TIFF
- ■ Tape: 4mm, 8mm, 150Mb QIC, 9 track
- ■ Diskette: 5 1/4", 3 1/2"
- ■ CD-ROM: Standard UNIX workstation models
- ■ Others (e.g. GP): Magellan, Trimble

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: VGA (PC), Standard UNIX workstation color displays, Raster
- □ Plotters:
- ■ Film Recorders: MATRIX, AGFA
- ■ Printers: Tetctronix, Calcomp, Hewlett Packard, all postscript printers
- ■ Tape: 8 mm, 4 mm, 150 MB QIC, 9 track
- ■ Diskette: 5 1/4" and 3 1/2"
- ■ Others:

Exchange file formats supported: All standard formats including: TIFF, Postscript, EPS, X-Windows files, SUN Raster files.

System Linkages:

- ■ Macro language available for customizing/extending system $Free
- ■ Linkable libraries for data structure access $3000 ■ FORTRAN ■ C □ Other
- ■ Source code available Modular ■ FORTRAN ■ C □ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- □ Topological Structuring
- □ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported:
- ■ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- □ Surface Modeling
- □ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- ■ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ■ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Atmospheric correction, OrthoPhoto Generation, DEM Generation, Neural Network Classifiers, FLY! 3D Reel time rendoring tool, GPS/Remote sensing system (the truth).

PRODUCT NAME: ECODATA

Company/Organization

Name:	Systems Development Associates	Contact:	Charles T. Jadwin
Address:	1415 Mott Foundation Bldg.	Person(s):	President
	Flint, MI 48502	Phone:	313 235 6866
	USA	Fax:	313 235 8984

Product Information

Product Name: EcoDATA

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Minimum Hardware/System Configuration: 386, 4 MB RAM, 44 MB hard drive

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

License fee is: ■ One Time Charge ■ Recurrent every report

Basic (minimal) software system cost: $400 Describe: Purchase of environmental government database report - specific to site location suitable for Phase I environmental studies.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Comments: We are training at GMI - Management & Engineering Institute Geo/Spl.

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- □ Digitizers:
- □ Scanners:
- □ Frame Grabbers:
- □ Tape:
- ■ Diskette:
- ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- □ Displays:
- ■ Plotters:
- □ Film Recorders:
- ■ Printers:
- □ Tape:
- ■ Diskette:

System Linkages:

- ■ Integrated DBMS: Dbase III, Oracle

GIS Functionality:

- ☐ Map Digitizing
- ■ Digital Map Editing
- ☐ Topological Structuring
- ☐ Network Flow Analysis
- ☐ Cell-based/Raster Modeling
- ☐ Map Composition/Generation
- ■ Map Display & Query
- ☐ Map Projection Changes
- ☐ Datum Changes
- ☐ Vector Overlay Analysis
- ☐ Surface Modeling
- ☐ Buffer generation

Image Processing Functionality:

- ☐ Interactive Display
- ☐ Geometric Rectification
- ☐ Image Mosaicing
- ☐ Radiometric Corrections
- ☐ Multi-Spectral Classification
- ☐ Radar Geocoding & Analysis
- ☐ Image Enhancement
- ☐ Spatial Filtering
- ☐ Fourier Analysis
- ☐ Multivariate Analysis/Statistical Analysis
- ☐ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

PRODUCT NAME: ECOSYSTEM TM

Company/Organization

Name:	Harvard Design & Mapping Co., Inc.	Contact:	Ms. Kija Kim, President
Address:	80 Prospect St.	Person(s):	
	Cambridge, MA 02139-2503	Phone:	617 354 0100
	USA	Fax:	617 868 6855
		E-Mail:	hdm@world.std.com

Product Information

Product Name: EcoSystem TM

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD ■ Other: Expert Modeling System

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: □ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh ■ Other: PC/Next step, Windows, Windows NT

Minimum Hardware/System Configuration: PC 486 16 MB RAM, 250 MB disk

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Complete systems available, software and full hardware.

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System □ Site

License fee is: ■ One Time Charge with maintenance □ Recurrent every

Basic (minimal) software system cost: $ Describe: Each system designed for application, therefore priced individually.

Other Pricing Information: All applications designed for user/system needs, and can include hardware, data, services, maintenance, etc., according to client's budget.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials ■ Other: On-site

Software support available: ■ Worldwide □ Not Available □ Other: Via telephone

List supporting agencies and their phone numbers: HDM 1 617 354 0100

Cost of support: □ Included in License ■ $10% of purchase price per year

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: HDM 617 354 0100

Software updates

Frequency: □ Annual ■ Semi-annual □ Other:

Cost of updates: ■ Included in Software maintenance □ $

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of Volumes: 1 Languages available: English

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 2 (As of July 31, 1993)

Number of installations by continent:

North America: 2

Year of first installation: 1993

Technical/Functional

System Linkages:

■ Integrated DBMS: POET

GIS Functionality:

■ Map Digitizing
■ Digital Map Editing
■ Topological Structuring
■ Network Flow Analysis
■ Cell-based (Raster) Modeling
■ Map Composition/Generation
■ Map Display & Query
■ Map Projection Changes; No. Supported:
□ Datum Changes; Datums Supported:
■ Vector Overlay Analysis
■ Surface Modeling
□ Buffer generation

Other Significant Functional Areas: Volume modeling, mathematical modeling, expert system analysis

Image Processing Functionality:

■ Interactive Display
■ Geometric Rectification
□ Image Mosaicing
□ Radiometric Corrections
□ Multi-Spectral Classification
□ Radar Geocoding & Analysis
□ Image Enhancement
■ Spatial Filtering
□ Fourier Analysis
■ Multivariate Analysis/Statistical Analysis
■ Raster-GIS Modeling
■ Hardcopy Map Composition/Annotation

Technical Features:

■ Spatial index supported (e.g., quadtree); Describe:

■ Object oriented architecture; Describe: System built on D.O. code and integrated tools.

■ Expert system capability; Describe: Fully functional expert system integrated into basic code of system.

PRODUCT NAME: EPPL7

Company/Organization

Name:	Minnesota Land Management	Contact:	Timothy N. Loesch
Address:	658 Cedar Street, Suite 330	Person(s):	James Ramstrom
	St. Paul, MN 55068 USA	Phone:	612 296 1206
		Fax:	612 296 1212
		E-Mail:	eppl7@lmic.state.mn.us

Product Information

Product Name: EPPL7

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: □ Vector or ■ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

■ Microsoft Windows

Minimum Hardware/System Configuration: PC 286 512K RAM EGA monitor

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $500-1000 U.S. Describe: $500 for government/academic licenses; $1000 for private. Substantial site license discounts. Gov/AC. 10 copies = 2500; 25 copies = 5000; 100 copies = 10,000.

Complete (fully capable) software system cost: $500 Describe: Get all 5 EPPL7 modules - analysis, screen display, digitizing, hardcopy map creation, map template maker.

Other Pricing Information: No additional "modules".

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Comments: "User's Guide" comes with license and has data and tutorial.

Software support available: ■ Worldwide □ Not Available □ Other:

Maintenance contract available for turnkey system? □ Yes ■ No

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: 2-year

Cost of updates: □ Included in Software License ■ $ Varies with/extent of upgrade

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 400-500 Number of Volumes: 1 Languages available: English

On-Line help: ☐ Basic ■ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics) Planned

■ Full Graphical User Interface

■ Single Screen ☐ Dual Screen

Batch capability: ■ Yes ☐ No

User Base

Total number of installations: 1271 (As of July 31, 1993)

Year of first installation: 1986

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Most - any tablet capable of point mode, ASCII output
- ■ Scanners: TIFF file format/binary raster
- ■ Frame Grabbers: Pizzaz Plus
- ☐ Tape:
- ■ Diskette: If PC can read - any
- ■ CD-ROM:
- ■ Others (e.g. GP): GPS

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Display: EGA, VGA, SVGA, 8514
- ☐ Plotters:
- ■ Film Recorders: All that can handle .SCD files
- ■ Printers: Most - Laserjets, Paintjet, Dot Matrix
- ☐ Tape:
- ■ Diskette: All
- ☐ Others:

Exchange file formats supported: ERDAS, TIFF, Binary Raster, DXF, DLG, ASCII, GRASS

System Linkages:

- ■ External DBMS supported: All that can export fixed field ASCII

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ☐ Topological Structuring
- ☐ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ☐ Map Projection Changes; No. Supported:
- ☐ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

PRODUCT NAME: ERDAS IMAGINE®

Company/Organization

Name:	ERDAS, Inc.	Contact:	Stan Quinn
Address:	2801 Buford Hwy.	Person(s):	
	Suite 300	Phone:	404 248 9000
	Atlanta, GA 30329 USA	Fax:	404 248 9400

Product Information

Product Name: ERDAS IMAGINE®

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: □ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

■ Other: WINDOWS - NT

If UNIX, list vendors: SUN, IBM RS/6000, SGI, HP700, DEC, DG

Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look ■ Sunview

■ Microsoft Windows

Minimum Hardware/System Configuration: Approx. 120 meg. hard disk space for workstations (depending on which workstation).

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Contact ERDAS Sales Dept., Stan Quinn, to discuss

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $8000 Describe: For WINDOWS-NT; a lower cost will be available for the MS-DOS version in 1994; call for details.

Complete (fully capable) software system cost: $8000 Describe: For WINDOWS-NT; other configurations available.

Turnkey system (hardware & software) cost: $ Describe: No set price available; depends on what you want.

Other Pricing Information: Call for details

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: ■ Worldwide □ Not Available □ Other:

List supporting agencies and their phone numbers: Distributor network; call for details

Software updates

Frequency: ■ Annual □ Semi-annual

Cost of updates: □ Included in Software License ■ $2000 per year

Documentation/Interface

System documentation available as: ☐ Hardcopy ■ Electronic Files

On-Line help: ☐ Basic ■ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics) ■ Full Graphical User Interface

■ Single Screen ☐ Dual Screen

Batch capability: ■ Yes ☐ No

User Base

Total number of installations: 2000 (As of July 31, 1993)

Year of first installation: 1978

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers:
- ☐ Frame Grabbers:
- ■ Diskette:
- ■ Others (e.g. GP): GPS
- ■ Scanners:
- ■ Tape:
- ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays:
- ☐ Film Recorders:
- ■ Tape:
- ■ Plotters:
- ■ Printers:
- ■ Diskette:

Exchange file formats supported: ASCII, GRID, TIFF, Generic BIL, BIP, BSQ

System Linkages:

- ■ Macro language available for customizing/extending system

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ☐ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 40
- ☐ Datum Changes; Datums Supported:
- ☐ Vector Overlay Analysis
- ☐ Surface Modeling
- ☐ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- ■ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ■ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe:
- ■ Object oriented architecture; Describe:

PRODUCT NAME: GENAMAP

Company/Organization

Name:	Genasys II Limited	Contact:	Peter Bayley
Address:	Manchester Science Park	Person(s):	Sara Thompson
	Lloyd Street North	Phone:	44 61 232 9444
	Manchester M15 4EN	Fax:	44 61 232 9453
	UK	E-Mail:	peterb@genasys.co.uk
			sarat@genasys.co.uk

Product Information

Product Name: GenaMap

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: HP, IBM, SUN, SGI, DG, DEC, ICL, SCO, BULL

Graphics Environments Supported: ■ X-Windows ■ Motif □ Open Look □ Sunview

□ Microsoft Windows

Minimum Hardware/System Configuration: 386 PC, 16 MB memory, 200 MB disk, Super VGA, 245 colors, SCO opendesktop 2.0 or later, LAN card.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: GenaMap can be supplied with appropriate hardware. Several 3rd party suppliers also supply GenaMap based applications.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $12,000 Describe: Full GIS base system providing 3D vector, raster, networking, digitizing, plotting plus full vector/raster/network analysis. Links to RDBMS via client-server model; fully user-customizable graphical user interface based OX XII Window and OSF/Motif.

Complete (fully capable) software system cost: $15,000 Describe: As previous

Other Pricing Information: Civil engineering Genacivil (TIN surface modeling, CAD, Roads Design and Hydrology) + vectorizing software (GenaRave) + document management (GenaDoc).

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Comments: On-site or at Genasys Training Centre

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: Distributors & VARS in most countries

Cost of support: ☐ Included in License ■ 15% of license Per annum

Cost of maintenance contract: $ Per

Software updates

Frequency: ☐ Annual ■ Semi-annual

Cost of updates: ■ Included in Software License ■ $ Included in maintenance (15% p.a.)

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 1000+ Number of Volumes: 8

Languages available: English and French

On-Line help: ■ Basic ■ Context Sensitive ■ Hyper-Text ☐ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes ☐ No

User Base

Total number of installations: 3600 (As of July 31, 1993)

Number of installations by continent:

North America: 1671 South America: 51 Africa: 57 Asia: 94 Europe: 1047

Australia: 680

Year of first installation: 1987

Technical/Functional

Maximum number of users supported: No limit

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: All major brands

■ Scanners: HP + TIFF file format

☐ Frame Grabbers:

■ Tape: QIC 150, DAT, Exabyte

■ Diskette:

■ CD-ROM:

■ Others (e.g. GP): Total survey stations

Output devices supported: List most common devices/formats/interfaces/etc.

■ Display: X-terminals, X-terminal emulators and PC's

■ Plotters: HP, Calcomp, etc.

☐ Film Recorders:

■ Printers:

■ Tape:

■ Diskette:

Exchange file formats supported: Over 30 vector and raster formats; continually updated; e.g. DCW, DXF, SIF, DGN, NTF, DIGEST, ASRP, TIFF, ERDAS, GRASS, MOSS.

System Linkages:

- ■ Integrated DBMS: Yes (proprietary)
- ■ External DBMS supported: Oracle, Ingres, Informix, Sybase, DB/400, DB2, others available
- ■ Macro language available for customizing/extending system Free
- ■ Linkable libraries for data structure access $15,000 □ FORTRAN ■ C □ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 28+
- ■ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Application development environment allows user to produce customized graphical interfaces without programming. API provides C language access to all functionality.

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- □ Spatial Filtering
- □ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: R-Tree, B-Tree, 16 leaf Tree
- ■ Object oriented architecture; Describe: Feature-oriented
- ■ Expert system capability; Describe: Integrated into expert systems

Other Significant Technical Features: Fast, efficient (20 MB product)

PRODUCT NAME: GEOAYSES

Company/Organization

Name:	Ayses, Inc.	Contact:	Ian Clayton
Address:	Bootiliers Pt.	Person(s):	
	Nova Scotia B0J 1G0	Phone:	902 826 2440
	Canada	Fax:	902 826 7274

Product Information

Product Name: GEOAYSES

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

■ Microsoft Windows ■ Other: GFX

Minimum Hardware/System Configuration: 640K-286, MOUSE, VGA

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $500 Describe: View System = $500 (includes data and map analysis); edit and antholim system $1,500 output to dot matrix and laser printers.

Complete (fully capable) software system cost: $2,500 Describe: View system, mapping, database analysis, antholim (digital input), output (plotters).

Turnkey system (hardware & software) cost: $6500 Describe: 386 minimum configuration with 100 MB hard drive, software installed and configured.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Comments: On-site and on location

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: Various agents in local areas

Cost of support: □ Included in License ■ 12% per site

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: As above

Cost of maintenance contract: 12%

Software updates

Frequency: ■ Annual □ Semi-annual

Cost of updates: □ Included in Software License ■ $200

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 50/100 Number of Volumes: 2 Languages available: English

On-Line help: ■ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 100 (as of July 31, 1993)

Number of installations by continent:

North America: 85 South America: 5 Asia: 5 Europe: 5

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Sumagraphics
- ■ Scanners:
- ■ Frame Grabbers: Matrix manual
- ■ Tape: Any
- ■ Diskette: Any
- ■ CD-ROM: Any

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: VGA
- ■ Plotters: Calcomp
- □ Film Recorders:
- ■ Printers: Dot Matrix, Lasers, Ink Jet (HP)
- ■ Tape: Any
- ■ Diskette: Any

Exchange file formats supported: NTX, DLG3, DXF

System Linkages:

- ■ Integrated DBMS
- ■ External DBMS supported: FoxPro, DBase, DBXL, Any XBase
- ■ Macro language available for customizing/extending system XBase
- ■ Linkable libraries for data structure access $ ■ FORTRAN ■ C □ Other
- ■ Source code available $20,000 ■ FORTRAN ■ C □ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- □ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 10
- ■ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- □ Surface Modeling
- ■ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- □ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- □ Image Enhancement (to be added)
- ■ Spatial Filtering (single polygon)
- □ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling (being added)
- ■ Hardcopy Map Composition/Annotation

Technical Features:

■ Expert system capability; Describe: User definable multivarient search and filtering. Fuzzy search concepts.

Other Significant Technical Features: Data organization and multilevel classification; as well as direct entry key word searches.

PRODUCT NAME: GEOCITY

Company/Organization

Name:	CLEMESSY S.I.G.	Contact:	B. Legin (Sales Manager)
Address:	18, rue de Thann-BP2499	Person(s):	
	68057 Mulhouse Cedex	Phone:	33 1 49 80 75 51
	France	Fax:	33 1 43 99 46 50

Product Information

Product Name: GEOCITY

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: SUN/IBM RS 6000/HP9000

Graphics Environments Supported: □ X-Windows ■ Motif □ Open Look ■ Sunview □ Microsoft Windows

Minimum Hardware/System Configuration: Server: RAM 32 MB, Disk 1 GB; Client: RAM 32 MB, Disk 200 MB

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Only by software (HOSTID)

Licensing/Pricing

■ Public Domain: Costs for distribution/documentation? Included in price license

■ Commercial Product

Licensed by: ■ User □ System ■ Site

Basic (minimal) software system cost: $20,000 Describe: This price includes: server license and client license for one user.

Complete (fully capable) software system cost: $80,000 Describe: For one user, this price includes: server GeoCity, Raster server, Historic server, licenses; client Geocity, Repres, Query languages, topographic calculation, DTM, network modeling, Interface of digitalization, C library.

Turnkey system (hardware & software) cost: $ Describe: Included in the cost software

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Comments: Available in French/German/English

Software support available: □ Worldwide □ Not Available ■ Other: Europe

List supporting agencies and their phone numbers: Brochier (Germany), Thompson (France) 33 1 40 84 37 85, Clemessy (France) 33 1 49 80 75 53

Cost of support: ■ Included in License ■ $2,000 Per year (France, Germany)

Maintenance contract available for turnkey system? □ Yes ■ No

List maintenance agencies and their phone numbers: See software support

Cost of maintenance contract: $15% price licenses per year

Software updates

Frequency: ☒ Annual ☐ Semi-annual ☐ Other:

Cost of updates: ☒ Included in Software License ☐ $

Documentation/Interface

System documentation available as: ☒ Hardcopy ☐ Electronic Files

Number of pages: 2200 Number of Volumes: 3

Languages available: French/German/English

On-Line help: ☐ Basic ☐ Context Sensitive ☒ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

☒ Full Graphical User Interface

☒ Single Screen ☐ Dual Screen

Batch capability: ☒ Yes ☐ No

User Base

Total number of installations: 75 licenses (As of July 31, 1993)

Number of installations by continent:

Europe: 75 (licenses)

Year of first installation: 1987

Technical/Functional

Maximum number of users supported: Unlimited

Input devices supported: List most common devices/formats/interfaces/etc.

☒ Digitizers: Calcomp/OCE

☒ Scanners:

☐ Frame Grabbers:

☒ Tape:

☒ Diskette:

☒ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

☐ Displays:

☒ Plotters: Pen, Electrostatic, Laser (HPGL/BGL/Postscript)

☐ Film Recorders:

☒ Printers:

☒ Tape:

☒ Diskette:

Exchange file formats supported: DXF, Arc/Info, DCW, TIFF, SPOT

System Linkages:

☒ Integrated DBMS: Sybase

☒ Macro language available for customizing/extending system $6000

☒ Linkable libraries for data structure access $10,000 ☐ FORTRAN ☒ C ☐ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- □ Map Projection Changes; No. Supported:
- □ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Historical database management

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: Specified algorithms (non diffuseable)
- ■ Object oriented architecture; Describe:

PRODUCT NAME: GEOLINK

Company/Organization

Name:	GeoResearch, Inc.	Contact:	James Meenan
Address:	Metro Center	Person(s):	
	700 13th Street NW, Suite 950	Phone:	202 434 8910
	Washington, D.C. 20005 USA	Fax:	202 434 8911

Product Information

Product Name: GeoLink GPS/GIS Mapping System

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Minimum Hardware/System Configuration: 286 with 20 Megabyte hard drive, 1 meg RAM, Math co-processor

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: GeoLink with Motorola LGT 1000 GPS/GIS terminal

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $3850

Complete (fully capable) software system cost: $3850

Turnkey system (hardware & software) cost: $8400 Describe: Includes GeoLink and Motorola LGT 1000 with Field Kit

Other Pricing Information: GeoLink-XDS upgrade $1925

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Comments: Client customized training provided at standard rates

Software support available: ■ Worldwide □ Not Available □ Other:

List supporting agencies and their phone numbers: GeoResearch, Inc. - 406 248 6771

Cost of support: ■ Included in License (first year)

Maintenance contract available for turnkey system? □ Yes ■ No

Software updates

Frequency: □ Annual □ Semi-annual ■ Other:

Cost of updates: □ Included in Software License ■ Dependent on update

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 150 Number of Volumes: 1 Languages available: English

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

☒ Full Graphical User Interface

☐ Single Screen ☐ Dual Screen

Batch capability: ☒ Yes ☐ No

User Base

Total number of installations: 500+ (As of July 31, 1993)

Installations by continent:

North America: 50% South America: 2% Africa: 2% Asia: 20% Europe: 25%

Australia: 1%

Technical/Functional

Maximum number of users supported: Single user

Input devices supported: List most common devices/formats/interfaces/etc.

- ☐ Digitizers
- ☐ Scanners
- ☐ Frame Grabbers
- ☐ Tape
- ☐ Diskette
- ☐ CD-ROM
- ☒ Others (e.g. GP): Various GPS including Motorola, Magellan, Ashtech, Garmin, Trimble, NMEA

Output devices supported: List most common devices/formats/interfaces/etc.

- ☒ Displays
- ☒ Plotters
- ☐ Film Recorders
- ☒ Printers
- ☐ Tape
- ☒ Diskette

Exchange file formats supported: DXF, ASCII, ARC/INFO, Intergraph, Dbase

System Linkages:

- ☒ External DBMS supported: User defined

GIS Functionality:

- ☐ Map Digitizing
- ☒ Map Display & Query
- ☒ Digital Map Editing
- ☒ Map Projection Changes; No. Supported: Major
- ☐ Topological Structuring
- ☒ Datum Changes; Datums Supported: Major
- ☐ Network Flow Analysis
- ☐ Vector Overlay Analysis
- ☐ Cell-based (Raster) Modeling
- ☐ Surface Modeling
- ☐ Map Composition/Generation
- ☐ Buffer generation

Image Processing Functionality:

- ☒ Interactive Display
- ☐ Image Enhancement
- ☐ Geometric Rectification
- ☐ Spatial Filtering
- ☐ Image Mosaicing
- ☐ Fourier Analysis
- ☐ Radiometric Corrections
- ☐ Multivariate Analysis/Statistical Analysis
- ☐ Multi-Spectral Classification
- ☐ Raster-GIS Modeling
- ☐ Radar Geocoding & Analysis
- ☐ Hardcopy Map Composition/Annotation

PRODUCT NAME: GEOLOCATE, QUADRANT, ROUTE PLAN, VOYAGER

Company/Organization

Name:	GeoSystems	Contact:	David R. Bowen, Manager
Address:	227 Granite Run Drive	Person(s):	Information Resources
	Suite 100-104	Phone:	Center 717 293 7500
	Lancaster, PA 17601 USA	Fax:	717 293 7467

Product Information

Product Name: GeoLocate, Quadrant, Route Plan, Voyager

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS ■ PC-OS/2 □ VAX-VMS ■ Macintosh

Graphics Environments Supported: ■ X-Windows ■ Motif □ Open Look ■ Sunview

■ Microsoft Windows

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User ■ System ■ Site ■ Other: Depends on application

License fee is: ■ One Time Charge ■ Recurrent every Depends on application

Support/Updates

Training assistance available: □ Courses □ Training Videos □ Tutorials

■ Other: Customer dependent

Software support available: □ Worldwide □ Not Available ■ Other: U.S. only (presently)

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: On databases and software

Cost of maintenance contract: $Application/license dependent

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: As required

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

System Linkages:

- ☒ Integrated DBMS:
- ☒ External DBMS supported:
- ☒ Macro language available for customizing/extending system $
- ☒ Linkable libraries for data structure access $ ☒ FORTRAN ☒ C ☐ Other
- ☐ Source code available $ ☒ FORTRAN ☒ C ☐ Other

GIS Functionality:

- ☒ Map Digitizing
- ☒ Digital Map Editing
- ☒ Topological Structuring
- ☒ Network Flow Analysis
- ☒ Cell-based (Raster) Modeling
- ☒ Map Composition/Generation
- ☒ Map Display & Query
- ☒ Map Projection Changes; No. Supported:
- ☒ Datum Changes; Datums Supported:
- ☒ Vector Overlay Analysis
- ☒ Surface Modeling
- ☒ Buffer generation

Image Processing Functionality:

- ☒ Interactive Display
- ☐ Geometric Rectification
- ☒ Image Mosaicing
- ☐ Radiometric Corrections
- ☐ Multi-Spectral Classification
- ☐ Radar Geocoding & Analysis
- ☒ Image Enhancement
- ☒ Spatial Filtering
- ☒ Fourier Analysis
- ☐ Multivariate Analysis/Statistical Analysis
- ☒ Raster-GIS Modeling
- ☐ Hardcopy Map Composition/Annotation

Technical Features:

- ☒ Spatial index supported (e.g., quadtree)
- ☒ Object oriented architecture
- ☒ Expert system capability

PRODUCT NAME: GEOMANAGEMENT SYSTEM™, GMS-DECIDE, GMS-NET

Company/Organization

Name:	Da Vinci Consulting	Contact:	O. G. Cogels
Address:	Chaussee De Hvy 230	Person(s):	M. Ansoult
	B.1325 Chaumont.Gistoux	Phone:	32 10 68 94 63
	Belgium	Fax:	32 10 68 96 75
		E-Mail:	oc@davinci.be

Product Information

Product Name: GEOMANAGEMENT SYSTEM ™, GMS-DECIDE, GMS-NET

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector and ■ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

■ Other: Client-server, PC UNIX in LAN or WAN

If UNIX, list vendors: SUN, IBM, SIEMENS

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

■ Microsoft Windows

Minimum Hardware/System Configuration: PC 386 or higher, DOS 5.0, MS Windows 3, VGA screen, min. 4 MB RAM, GMS-server: any UNIX host.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Customized solutions with all support from one PC workstation to complex international networks of PC and UNIX workstations, including possible low-cost modem connection.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $900 Describe: GMS-DECIDE: The low cost, full featured PC solution is 900 US$; GMS-NET: Cost ranging from $10,000 depending on number of users; GMS-PUBLISH: License for free distribution of run time applications on CD ROM $600 up to $4,000.

Complete (fully capable) software system cost: $ Describe: GMS-DECIDE: $900; GMS-NET: $10,000 up

Turnkey system (hardware & software) cost: $ Describe: GMS-DECIDE: $3000 - $5000; GMS-NET: From $20,000

Other Pricing Information: Possible customization for specific needs

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Comments: At DaVinci Consulting or on site

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: Da Vinci Consulting

Cost of support: □ Included in License ■ Maintenance contract

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: Da Vinci Consulting, Belgium

Cost of maintenance contract: 15%

Software updates

Frequency: ■ Annual □ Semi-annual

Cost of updates: ■ Included in Software License □ Maintenance contract

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 100 Number of Volumes: 1 Languages available: English

On-Line help: ■ Basic □ Context Sensitive ■ Hyper-Text □ Not Available

User Interface: □ Command Line ■ Windows (Some Graphics)

□ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: □ Yes ■ No

User Base

Total number of installations: New product September 1993

Technical/Functional

Maximum number of users supported: GMS-DECIDE: 1 GMS-NET: Depending upon DBMS

Input devices supported: List most common devices/formats/interfaces/etc.

Used as peripherals on the network under Windows

- ■ Digitizers:
- ■ Scanners:
- ■ Frame Grabbers:
- ■ Tape:
- ■ Diskette:
- ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: VGA
- ■ Plotters: Used as peripherals on the network
- ■ Film Recorders: "
- ■ Printers: "
- ■ Tape: "
- ■ Diskette: "
- ■ Others: "

System Linkages:

- ■ Integrated DBMS: GMS-DECIDE: Paradox GMS-NET: Oracle, Informix

GIS Functionality:

- ☐ Map Digitizing
- ☐ Digital Map Editing
- ☐ Topological Structuring
- ☐ Network Flow Analysis
- ☐ Cell-based (Raster) Modeling
- ☐ Map Composition/Generation
- ■ Map Display & Query
- ☐ Map Projection Changes; No. Supported:
- ☐ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ☐ Surface Modeling
- ☐ Buffer generation

Other Significant Functional Areas: The system is quite different from conventional mapping system. It is mainly a multi media information management and analysis system with high flexibility in map display and multi format data management. Also strong in communication.

Image Processing Functionality:

- ■ Interactive Display
- ☐ Geometric Rectification
- ☐ Image Mosaicing
- ☐ Radiometric Corrections
- ☐ Multi-Spectral Classification
- ☐ Radar Geocoding & Analysis
- ☐ Image Enhancement
- ☐ Spatial Filtering
- ☐ Fourier Analysis
- ☐ Multivariate Analysis/Statistical Analysis
- ☐ Raster-GIS Modeling
- ☐ Hardcopy Map Composition/Annotation

PRODUCT NAME: GEOMAX

Company/Organization

Name:	ACDS Graphic Systems, Inc.	Contact:	Candice Truesdale-Cooper
Address:	80 Jean Proulx	Person(s):	
	Hull, Quebec J8Z 1W2	Phone:	819 770 9631
	Canada	Fax:	819 770 9267

Product Information

Product Name: GEOMAX Family of Products

Type of Product: ■ GIS □ Image Processing ■ AM/FM ■ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: IBM and SUN

Graphics Environments Supported: ■ X-Windows ■ Motif □ Open Look □ Sunview

□ Microsoft Windows

Minimum Hardware/System Configuration: 16 MB RAM recommend 2000 MB HD

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: ACDS can provide the system (both hardware and software) fully configured and ready to use. ACDS is a reseller for both IBM and SUN Microsystems.

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System ■ Site

License fee is: □ One Time Charge ■ Dependent on maintenance program selected

Basic (minimal) software system cost: $3500 Describe: GEOMAX-IC Basic CAD package with database capabilities, interactive graphics, data manipulation language, printer & plotter support and ACDS E-file translator.

Complete (fully capable) software system cost: $9500 Describe: GEOMAX-LI Complete cartographic module including everything in GEOMAX-IC plus topology and a data and graphic manipulation 4GL.

Turnkey system (hardware & software) cost: Dependent on requirements

Other Pricing Information: The GEOMAX Family of Products has several modules available to suit each site's individual needs. These modules can be combined to best suit the requirements of the users.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: See attached list of distributors

Cost of support: □ Included in License ■ 18% of license costs per year

Maintenance contract available for turnkey system? ■ Yes □ No

Software updates

Frequency: ☐ Annual ☐ Semi-annual ■ Other: Usually semi-annual

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of Volumes: 2 Languages available: English and French

On-Line help: ☐ Basic ■ Context Sensitive ☐ Hyper-Text ☐ Not Available

Batch capability: ■ Yes ☐ No

User Base

Total number of installations: 440 (As of July 31, 1993)

Number of installations by continent:

North America: 340 Europe: 40 Australia: 60

Year of first installation: 1983

Technical/Functional

Maximum number of users supported: Depends on network

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers
- ☐ Frame Grabbers
- ■ Diskette
- ■ Scanners
- ■ Tape
- ☐ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays
- ☐ Film Recorders
- ■ Tape
- ■ Plotters
- ■ Printers
- ■ Diskette

Exchange file formats supported: SIF, DXF, DLG, AMF, IFF, MOSS

System Linkages:

- ■ Integrated DBMS: Oracle and Informix
- ■ External DBMS supported: Any "C" linkable external application. SQI hooks. Currently working with AS400 DB2.
- ■ Macro language available for customizing/extending system DML/G included with GEOMAX-LI $1500 for DML/G for GEOMAX-IC
- ■ Linkable libraries for data structure access $4500 ☐ FORTRAN ■ C ☐ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ☐ Map Projection Changes; No. Supported:
- ☐ Datum Changes; Datums Supported:
- ☐ Vector Overlay Analysis
- ☐ Surface Modeling
- ☐ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- □ Geometric Rectification
- ■ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- □ Spatial Filtering
- □ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- □ Hardcopy Map Composition/Annotation

Technical Features:

■ Spatial index supported (e.g., quadtree); Describe: ACDS Netbase is a networked database that uses a file by extent method with a quadtree structure to store its graphics.

Other Significant Technical Features: ACDS provides a powerful development environment that allows users or integrators to customize an environment or create new applications to address any industry that requires a GIS.

PRODUCT NAME: GEOPACKAGE

Company/Organization

Name:	Geops B.V.	Contact:	Mr. Krenwel
Address:	Agro Business Park 36	Person(s):	
	6708 PW Wageningen	Phone:	31 8370 79636
	The Netherlands	Fax:	31 8370 79704

Product Information

Product Name: GeoPackage

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

■ Microsoft Windows

Minimum Hardware/System Configuration: 286 PC minimal without co-processor; 486 DX 66 or 50 MhZ is optional; 16 MB memory

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site ■ Other: With hardware keys

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $7500 Describe: Every extra license 20% reduction; from 5 licenses a campus license contract goes; once $20,000 and each license = $500.

Complete (fully capable) software system cost: $7500

Other Pricing Information: Contact company

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Comments: In Dutch and English

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: Only European agencies

Cost of support: □ Included in License ■ 15% Per license

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: 2-3 times per year

Cost of updates: □ Included in Software License ■ $ included in maintenance

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 800 Languages available: Dutch and English

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 150 (As of July 31, 1993)

Number of installations by continent:

Europe: 150

Technical/Functional

Maximum number of users supported: Restricted by number of hardware keys

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: Calcomp, Numonics, etc.

□ Scanners:

□ Frame Grabbers:

□ Tape:

□ Diskette:

□ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

■ Display: All devices of GKS/GSS software, EGA, VGA, SVGA, etc.

■ Plotters: HPGL and many others

□ Film Recorders:

■ Printers: See plotters

□ Tape:

□ Diskette:

System Linkages:

■ Integrated DBMS: dBase compatible file structure

■ External DBMS supported: dBase, Oracle and SQL-file dBases

■ Macro language available for customizing/extending system $

GIS Functionality:

■ Map Digitizing	■ Map Display & Query
■ Digital Map Editing	□ Map Projection Changes; No. Supported:
□ Topological Structuring	□ Datum Changes; Datums Supported:
□ Network Flow Analysis	□ Vector Overlay Analysis
■ Cell-based (Raster) Modeling	□ Surface Modeling
■ Map Composition/Generation	■ Buffer generation

Image Processing Functionality:

□ Interactive Display	□ Image Enhancement
□ Geometric Rectification	■ Spatial Filtering
□ Image Mosaicing	□ Fourier Analysis
□ Radiometric Corrections	□ Multivariate Analysis/Statistical Analysis
□ Multi-Spectral Classification	■ Raster-GIS Modeling
□ Radar Geocoding & Analysis	□ Hardcopy Map Composition/Annotation

Technical Features:

- Spatial index supported (e.g., quadtree); Describe: RLC

PRODUCT NAME: GIS-CHAINS

Company/Organization

Name:	Hunter GIS	Contact Person(s):	Gordon D. McElravy
Address:	2695 North Sheridan Way Suite 120 Mississauga, Ontario L5K 2N6 Canada	Phone:	416 855 2323
		Fax:	416 855 2411

Product Information

Product Name: GIS-CHAINS

Type of Product: ■ GIS ■ Image Processing ■ AM/FM ■ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

□ Microsoft Windows ■ Other: C-SCAPE

Minimum Hardware/System Configuration: IBM AT compatible 2/3/486 Math Coprocessor, 8 Mb. RAM, 120 Mb. hard disc, VGA card and monitor, Imagraph card and high resolution monitor (1024 x 1280), 2 serial and 1 parallel port, 3 button mouse.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Hunter will configure hardware, load all software and deliver as a turnkey system.

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $13,000 CDN Describe: The GIS-CHAINS software is a full topological GIS software, supporting the three data structures common to CAD/GIS; vector (CAD), vector topology (GIS), and raster, vector topology or "intelligent." GIS has the most potential for diverse resource, municipal and utility applications.

Complete (fully capable) software system cost: $15,000 Describe: The GIS-CHAINS vector topology software, including database and software conversion provides a fully capable GIS software package. Additional "optional" software modules add specific "application" features to the software.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: Worldwide telephone and fax support from Canadian headquarters.

Maintenance contract available for turnkey system? ■ Yes □ No

Software updates

Frequency: ■ Annual □ Semi-annual

Cost of updates: ■ Included in Software License □ $

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of Volumes: 2 Languages available: English

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

□ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Installations by continent:

North America, Africa, and Asia

Year of first installation: 1985

Technical/Functional

Maximum number of users supported: Single user workstation

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Gentian, GTCO, Calcomp
- ■ Scanners: Scanman, Mustek
- ■ Frame Grabbers: Imagraph Hi Def II frame grabber
- ■ Tape:
- ■ Diskette:
- □ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays:
- ■ Plotters: Hewkett Packard, Paintjet, DesignJet, Houston Instrument Pen Plotters
- ■ Film Recorders:
- ■ Printers: Hewlett Packard LaserJet, Seiko Colour Point Printer
- ■ Tape:
- ■ Diskette:

Exchange file formats supported: DXF, SIF, DLG-3, VEC/VEH, SURFER, TIGER, AMF, MOSS

System Linkages:

- ■ External DBMS supported: R:Base from MICRORIM

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported:
- ■ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- □ Image Mosaicing
- ■ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- □ Spatial Filtering
- ■ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Raster data conversion: Meridan, PCI, GLDS/CGIS

PRODUCT NAME: GISPLUS AND TRANSCAD

Company/Organization

Name:	Caliper Corporation	Contact:	Jack MacDougall
Address:	1172 Beacon St.	Person(s):	Eric Ziering
	Newton, MA 02161	Phone:	617 527 4700
	USA	Fax:	617 527 5113

Product Information

Product Name: GisPlus and TransCAD

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

■ Microsoft Windows

Minimum Hardware/System Configuration: 1) IBM and compatible 80286-386-486 based personal computer; 2) Minimum of 640 kilobytes (640k) random access memory; 3) One high density diskette drive (3 1/2" or 5 1/4"); 4) 80228 or 80387 math co-processor for 286 or 386 processor; 5) EGA or VGA display adaptor; 6) Color monitor; 7) One parallel port.

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $2995 Describe: GisPlus is Caliper's fully functional PC based Geographic Information System. It is an integrated computer mapping and spatial database management system that provides an array of functions for the storage, retrieval, management analysis and display of geographically referenced data.

Complete (fully capable) software system cost: $9995 Describe: TransCAD is a Geographic Information System (GIS) that helps transportation professionals and organizations store, display, manage and analyze transportation data. Information on transportation networks, freight flows, routes, schedules and transportation analysis zones are just a few of the procedures available with TransCAD.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Comments: Each product is accompanied by a tutorial text. Further, courses of one to three days are available upon request. They can be held on-site or at the Caliper facility.

Software support available: ■ Worldwide □ Not Available □ Other:

List supporting agencies and their phone numbers: Available at Caliper Corporation 617 527 4700 each business day, 9 a.m. to 6 p.m. EST.

Cost of support: □ Included in License ■ $495 per year for GisPlus and $995 per year for TransCAD

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: As they occur

Cost of updates: ■ Included in Software License

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 250 Number of Volumes: 1

Languages available: English only (at this time)

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

User Base

Total number of installations: > 1,000 (as of July 31, 1993)

Number of installations by continent: Breakdown not available

Year of first installation: 1989

Technical/Functional

Maximum number of users supported: Single User

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: All
- ■ Scanners: DCX Format
- ■ Frame Grabbers: DCX Format
- ■ Tape: All MS-DOS Supported Devices
- ■ Diskette: All MS-DOS Supported Devices
- ■ CD-ROM: All MS-DOS Supported Devices

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: VGA or Better
- ■ Plotters: All HPGL-Compatible Plotters
- □ Film Recorders
- ■ Printers: All HP Compatible
- ■ Tape: All MS-DOS Supported Devices
- ■ Diskette: All MS-DOS Supported Devices

Exchange file formats supported: ASCII, TEXT, DXF, DGN, PCX, PCL, TIGER/LINE, ARC/INFO, DLG

System Linkages:

- ■ Integrated DBMS: Proprietary
- ■ External DBMS supported: dBase, Lotus
- ■ Macro language available for customizing/extending system $Included

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- □ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: > 100
- □ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- □ Surface Modeling
- ■ Buffer generation

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: Proprietary

Other Significant Technical Features: Supports huge geographic databases, transportation planning models, logistics tools, sophisticated network modeling, and raster overlay. Extremely easy to learn and use. Optional multimedia tools. MS-Windows and Windows/NT in development.

PRODUCT NAME: GRADIS-GIS

Company/Organization

Name:	STI Strässle Technische	Contact:	Dr. Franz Steidles
Address:	Postfach, Kanalstrasse 33	Person(s):	
	CH-8152 Glattbrugg	Phone:	41 1 8288469
	Switzerland	Fax:	41 1 8288214

Product Information

Product Name: GRADIS-GIS

Type of Product: ■ GIS □ Image Processing ■ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based (with Raster background)

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: HP-UX, ULTRIX, OSF1, Hewlett-Packard, Digital Equipment

Graphics Environments Supported: ■ X-Windows ■ Motif □ Open Look □ Sunview

□ Microsoft Windows

Minimum Hardware/System Configuration: 64 MB RAM, 1.2 GB disk, 19" monitor color

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Environmental applications, strategic information, forestry, electricity, cadastre

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $30,000 Describe: GRADIS - Kernel system, integrated relational db (ORACLE) for geometry and attributes; data model separate from representation model.

Complete (fully capable) software system cost: $80,000 Describe: GRADIS kernel plus data inter-change module, plot driver, network capture and analysis including network trace dimensioning, database organization tool.

Turnkey system (hardware & software) cost: $100,000 Describe: Like above, +1 application shell (electricity, cadastre, sewage, environmental or statistic) +HP9000/715 or DECstation 5000/200.

Other Pricing Information: On request

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: □ Worldwide □ Not Available ■ Other: Europe

Cost of support: □ Included in License ■ Approximatley $1200 per day

Maintenance contract available for turnkey system? □ Yes ■ No

Cost of maintenance contract: $12,000 per year

Software updates

Frequency: ■ Annual □ Semi-annual □ Other:

Cost of updates: ■ Included in Software License □ $

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

On-Line help: ■ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

□ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 70 (As of July 31, 1993)

Number of installations by continent:

Europe: 70

Year of first installation: 1977

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: ARISTO
- ■ Scanners: Everything compatible with UNIX standards
- ■ Frame Grabbers: Everything compatible with UNIX standards
- ■ Tape: Everything compatible with UNIX standards
- ■ Diskette: Everything compatible with UNIX standards
- ■ CD-ROM: Everything compatible with UNIX standards
- ■ Others (e.g. GP): Magnavox, Trimble GPS

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays:
- ■ Plotters: HPGL/HPGL2 compatible
- ■ Film Recorders: Compatible with UNIX standards
- ■ Printers: Compatible with UNIX standards
- ■ Tape: Compatible with UNIX standards
- ■ Diskette: Compatible with UNIX standards

Exchange file formats supported: Variable internal data interchange module DIM

System Linkages:

- ■ Integrated DBMS: ORACLE
- □ External DBMS supported: ORACLE, IBM ADABAS
- ■ Macro language available for customizing/extending system $Included
- ■ Source code available $On request □ FORTRAN □ C □ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- □ Map Projection Changes; No. Supported:
- □ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Area network tool (to generate consistent data from spaghetti); CDA CDA concurrent database access control.

Image Processing Functionality: With ERDAS connection

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- ■ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ■ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: GRID file mechanism based on quad tree structures.
- ■ Object oriented architecture; Describe: Geometry and attribute data in RDBMS stored as object.
- ■ Expert system capability; Describe: Learn mode

Other Significant Technical Features: Data modelling using CASE, check-in/check-out extendable

PRODUCT NAME: GWN-GIS

Company/Organization

Name:	GWN Systems, Inc.	Contact:	Heli Kuivanen
Address:	No. 200, 11133-124th Street	Person(s):	A.R.V. (Gus) Ribeiro
	Edmonton, Alberta T5M 0J2	Phone:	403 452 0090
	Canada	Fax:	403 453 5207

Product Information

Product Name: GWN-GIS

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: SUN Microsystems

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

□ Microsoft Windows

■ Other: Intergraph MicroStation, AutoCAD

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Complete (fully capable) software system cost: $4000

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: ■ Worldwide □ Not Available

Cost of support: □ Included in License ■ $400 Per seat

Software updates

Frequency: □ Annual ■ Semi-annual

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of Volumes: 1 Languages available: English

On-Line help: □ Basic □ Context Sensitive □ Hyper-Text ■ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

Batch capability: □ Yes ■ No

User Base

Total number of installations: 100 (As of July 31, 1993)

Year of first installation: 1990

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers
- □ Scanners
- □ Frame Grabbers
- □ Tape
- □ Diskette
- □ CD-ROM

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays
- ■ Plotters
- □ Film Recorders
- ■ Printers
- □ Tape
- □ Diskette

Exchange file formats supported: IGDS, DXF

System Linkages:

- ■ External DBMS supported: dBase
- ■ Macro language available for customizing/extending system
- ■ Linkable libraries for data structure access $ ■ FORTRAN ■ C □ Other

GIS Functionality:

- □ Map Digitizing
- ■ Map Display & Query
- □ Digital Map Editing
- □ Map Projection Changes; No. Supported:
- ■ Topological Structuring
- □ Datum Changes; Datums Supported:
- □ Network Flow Analysis
- ■ Vector Overlay Analysis
- □ Cell-based (Raster) Modeling
- ■ Surface Modeling
- □ Map Composition/Generation
- ■ Buffer generation

PRODUCT NAME: HYPERBIRD

Company/Organization

Name:	BSI Engineering	Contact:	Jean-Christophe Hadorn
Address:	Primerose 27	Person(s):	
	CH-1007 Lausanne	Phone:	21 617 17 66
	Switzerland	Fax:	21 617 17 80
		E-Mail:	Apple Link CH 0164

Product Information

Product Name: HYPERBIRD

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: □ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS ■ Macintosh

Minimum Hardware/System Configuration: MacIntosh Centris 610 8 MB/80 MB hard disk

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Upon request the bundled hardware and software can be delivered. Hardware would be purchased at a local reseller to ensure maintenance capabilities.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $13,000 Describe: HYPERBIRD is modular. Total cost depends upon the chosen modules.

Complete (fully capable) software system cost: $30,000

Turnkey system (hardware & software) cost: $60,000 Describe: Central processor unit 20 MB/600 MB QUADRA 800, 1 screen color 21", 1 screen 13", Syquest backup system, color A3 HP printer + color A3 scanner.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Comments: 5 day course is organized to start at a cost of $5,000.

Cost of support: □ Included in License ■ $5,000 Per Year (2d year)

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: To be discussed depending upon the local hardware reseller.

Software updates

Frequency: ■ Annual □ Semi-annual

Cost of updates: □ Included in Software License ■ $5,000 (2d year)

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 200 Number of Volumes: 1

Languages available: French, English (August 1993)

On-Line help: ■ Basic □ Context Sensitive ■ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

□ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No (Hypertalk knowledge required)

User Base

Total number of installations: 20 (As of July 31, 1993)

Number of installations by continent:

Europe: 20

Year of first installation: 1989

Technical/Functional

Maximum number of users supported: 20 per zone

Input devices supported: List most common devices/formats/interfaces/etc. (All devices that a Macintosh can accept are supported).

- ■ Digitizers:
- ■ Scanners:
- ■ Frame Grabbers:
- ■ Tape:
- ■ Diskette:
- ■ CD-ROM:
- ■ Others (e.g. GP): GPS with RS 232 link

Output devices supported: List most common devices/formats/interfaces/etc. (All devices that can be connected to a Macintosh are supported).

- ■ Displays:
- ■ Plotters:
- ■ Film Recorders:
- ■ Printers:
- ■ Tape:
- ■ Diskette:

Exchange file formats supported: PPICT for graphics, ASCII for text

System Linkages:

- ■ Integrated DBMS: HYPERCARD
- ■ External DBMS supported: Links to any DBMS on MAC is possible (ORACLE, ...)
- ■ Macro language available for customizing/extending system $HYPERTALK

GIS Functionality:

- ■ Map Digitizing
- ■ Map Display & Query
- □ Digital Map Editing
- ■ Map Projection Changes; No. Supported: 2
- ■ Topological Structuring
- □ Datum Changes; Datums Supported:
- ■ Network Flow Analysis
- ■ Vector Overlay Analysis
- □ Cell-based (Raster) Modeling
- □ Surface Modeling
- ■ Map Composition/Generation
- □ Buffer generation

Other Significant Functional Areas: Integrated 1D and 2D finite element model for flow and heat calculations.

Image Processing Functionality:

- ☒ Interactive Display
- ☐ Geometric Rectification
- ☐ Image Mosaicing
- ☐ Radiometric Corrections
- ☐ Multi-Spectral Classification
- ☐ Radar Geocoding & Analysis
- ☐ Image Enhancement
- ☐ Spatial Filtering
- ☐ Fourier Analysis
- ☐ Multivariate Analysis/Statistical Analysis
- ☐ Raster-GIS Modeling
- ☐ Hardcopy Map Composition/Annotation

Technical Features:

- ☒ Object oriented architecture; Describe: Topological structuring provides an object orienting architecture.
- ☒ Expert system capability; Describe: Could be added

Other Significant Technical Features: Complete integration vector and raster

PRODUCT NAME: HYPERGRID

Company/Organization

Name:	Inter-Survey Consultants	Contact:	A. Din
Address:	C.P. 308	Person(s):	
	CH-1211 Geneva 12	Phone:	41 22 3468171
	Switzerland	Fax:	41 22 3468176
		E-Mail:	AMD@CERNVM.CERN.CH.BITNET

Product Information

Product Name: HYPERGRID

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD ■ Other: Hypertext

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
□ Microsoft Windows ■ Other: DOS

Minimum Hardware/System Configuration: AT 386, 3 MB disk space

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: □ User □ System □ Site ■ Other: GRID, ESA, ISC

Documentation/Interface

System documentation available as: □ Hardcopy ■ Electronic Files

On-Line help: ■ Basic □ Context Sensitive ■ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)
■ Full Graphical User Interface

PRODUCT NAME: IDRISI

Company/Organization

Name:	IDRISI Project	Contact:	
Address:	Clark University	Person(s):	Karen Lehrach
	950 Main Street	Phone:	508 793 7526
	Worcester, MA 01610	Fax:	508 793 8842
	USA	E-Mail:	IDRISI@CLARKU

Product Information

Product Name: IDRISI Software

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: □ Vector or ■ Raster Based ■ Integrated Raster-Vector

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Minimum Hardware/System Configuration: AT or PS/2 compatible computer with 512K of free RAM, a hard disk and an EGA, VGA OR 8514/A graphics adaptor. A math co-processor is recommended but not required.

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Complete (fully capable) software system cost: $ Describe: $640 commercial; $320 academic/non-profit/government; $160 full time student

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials □ Other:

Software support available: ■ Worldwide □ Not Available □ Other

Cost of support: □ Included in License ■ $65 basic/$100 international; extended/site license support also available.

Software updates

Frequency: ■ Annual □ Semi-annual □ Other:

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

User Interface: ■ Command Line □ Windows (Some Graphics)

□ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 7900 (As of July 31, 1993)

Number of installations by continent:

North America: 5570 South America: 60 Africa: 100 Asia: 25 Europe: 1770

Australia: 415

Year of first installation: 1987

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Summagraphics Summasketch 1201, Summagrid 4; Calcomp Drawing Board 2, 9100; all Altek boards; customized configuration files for other boards are commonly written by users.
- □ Scanners:
- □ Frame Grabbers:
- □ Tape:
- □ Diskette:
- □ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Display: EGA, VGA, 8514/A and compatible
- ■ Plotters: HP7475 and compatible, may plot to an HPGL file
- □ Film Recorders:
- ■ Printers: HP Laserjet 2 & 3, HP Deskjet & Deskjet C in BW mode, Deskjet 500C Deskjet 550C Paintjet, Paintjet XL, Paintjet 300, paintjet 1200C; Epson FX & LX; IBM Proprinter, Diconix 150; Toshiba 321.
- □ Tape:
- □ Diskette:

Exchange file formats supported: TIF, DLG(import only), Arc/Info, ERDAS, GRASS

System Linkages:

- ■ Linkable libraries for data structure access File formats are documented, sample program shells are provided in Pascal and BASIC.

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- □ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- □ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported:
- ■ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Multi-criteria evaluation, criteria weighting, multi-objective land allocation modules for decision support; error anlaysis support; cost distance and optimal path calculation; batch & meta programming support; supports real number data. Note: Vector digitizing and editing capabilities provided in the companion program Tosca.

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- □ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- □ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Unstandardized principal components analysis; standardized principal components analysis for up to 64 images; HIS/RGB color space transformation; vector overlay on images.

Technical Features:

Other Significant Technical Features: IDRISI supports all combinations of byte, 2 byte integer and 4-byte real (floating point) data types, and ASCII, Binary and packed binary (run length encoded) file structures.

PRODUCT NAME: IGIS

Company/Organization

Name:	Laser-Scan, Ltd.	Contact:	
Address:	Cambridge Science Park	Person(s):	Dr. Tim Hartnell
	Milton Road	Phone:	44 223 420 414
	Cambridge CB4 4FY UK	Fax:	44 223 420 044

Product Information

Product Name: IGIS (Integrated Raster/Vector/Image System)

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: DEC, HP, SUN, IBM

Graphics Environments Supported: □ X-Windows ■ Motif □ Open Look □ Sunview □ Microsoft Windows

Minimum Hardware/System Configuration: DEC Station 5000 PXG color graphics, 32 MB memory, 400 MB disk; SUN Sparc 10 SPARC 2, GX color graphics, 32 MB memory, 400 MB disk; IBM RS6000 320 320H 530 530H SKYWAYS color graphics, 400 MB disk, 32 MB memory; HP (Apollo 9000 710/715).

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Turnkey system is DEC station 5000/240 pkg color graphics. 1GB external disk application software includes analysis module for integrated raster/vector/image analysis, image registration module. Data import/export module including map projection and bulle correction transform facilities and database management module.

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System □ Site

Basic (minimal) software system cost: $30-70K Describe: High-end solution offering includes the application development environment for end-user tailoring.

Turnkey system (hardware & software) cost: $60-100K Describe: Price variation based upon hardware configuration and tailored options for the end user.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: USA: 703 709 9306; Canada: 819 568 2550

Cost of support: □ Included in License ■ 17.5% per annum

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: Digital support organizations world-wide

Software updates

Frequency: ■ Annual Cost of updates: ■ Included in Software License

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 1000 Number of Volumes: 3 Languages available: English

On-Line help: ■ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 2 (as of July 31, 1993)

Number of installations by continent:

Europe: 2

Year of first installation: 1992

Technical/Functional

Maximum number of users supported: Single user

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers □ Scanners

□ Frame Grabbers ■ Tape

■ Diskette ■ CD-ROM

■ Others (e.g. GP)

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays

■ Plotters

□ Film Recorders

■ Printers: Hard copy output is PostScript

■ Tape

■ Diskette

□ Others

Exchange file formats supported: VECTOR: Autocad, DXF, ARC/Info, NTF, Laser-Scan IFF, Intergraph SIF (ASCII), IBM IFF; RASTER: LANDSAT MSS, LANDSAT TM, SPOT, International Imagaging Systems (IIS) line oriented image format, Erdas 75 LAN/GIS/CCITT Group 4 TIFF, DTED, LaserScan DTI.

System Linkages:

■ Integrated DBMS: Oracle or Ingres

■ Macro language available for customizing/extending system

■ Source code available $Open for discussion □ FORTRAN □ C □ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- □ Topological Structuring
- □ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- □ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 24+
- ■ Datum Changes; Datums Supported: Many
- ■ Vector Overlay Analysis
- □ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Map library and gazetteer. Raster edit and raster to vector conversion. Vector to raster conversion. Raster result saving. DTM slope aspect and hill shade generation. Intervisibility analysis from DTM. Continuous mapping.

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- □ Image Mosaicing
- □ Radiometric Corrections
- ■ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- □ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- □ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Seamless integration of vector objects with training area definitions for supervised image classification. Fully integrated raster image and vector display with cartographic quality vector represented.

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: Enhanced quadtree spatial index with tiled raster and tuneable memory caching.
- ■ Object oriented architecture

Other Significant Technical Features: Fully integrated raster/image/vector data handling and display.

PRODUCT NAME: ILWIS

Company/Organization

Name:	ITC	Contact:	Ms. Annet Pril
Address:	350, Boulevard 1945	Person(s):	Ms. Rosilah Sani
	PO Box 6	Phone:	31 53 874 337
	7500 AA Enschede	Fax:	31 53 874 436
	The Netherlands	E-Mail:	ILWIS ITC.NL

Product Information

Product Name: ILWIS (Integrated Land and Water Information System) Version 1.4

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Minimum Hardware/System Configuration: IBM-AT 80286 (or compatible) + math coprocessor, hard disk at least 20 MB, 640 KB internal memory, MS-DOS 3.2 or later, monochrome monitor + MDA or Hercules graphics monitor.

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $4200 Describe: Full system, Dfl. 7500,=

Complete (fully capable) software system cost: $ Describe: $4200 (Dfl. 7500) non-commercial users; $11,100 (Dfl. 20000) commercial users.

Other Pricing Information: Only complete (fully capable) software systems available.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials ■ Other: Case-studies, demonstration packages

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: ITC-ILWIS Tech. support +31 53 874 217/445; local distributors

Cost of support: □ Included in License ■ Variable

Maintenance contract available for turnkey system? □ Yes ■ No

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: 12-18 months

Cost of updates: □ Included in Software License ■ Variable

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 400+ Number of Volumes: 2

Languages available: English and Chinese

On-Line help: □ Basic □ Context Sensitive □ Hyper-Text ■ Not Available

User Interface: ■ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

□ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 1102 (As of July 31, 1993)

Number of installations by continent:

North America: 16 South and Central America: 217 Africa: 87 Asia: 216

Europe: 560 Australia: 6

Year of first installation: 1988

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: Most digitizers with a 4-button cursor that can send their data using serial communication (RS-232-C) in ASCII format

□ Scanners:

□ Frame Grabbers:

□ Tape:

■ Diskette: 3 1/2", 5 1/4"

□ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays:

■ Plotters: Any plotter that supports HPGL or HPGL-2

□ Film Recorders:

■ Printers: See hardware requirements

□ Tape:

■ Diskette: 3 1/2", 5 1/4"

Exchange file formats supported: Table: DBase.DBF, DBase.SDF, TXT. Lotus.DIF; Raster: TIFF, LAN, ERDAS GIS, Window BMP, LIP, Geosoft.GRD, IDA-IMG, GIF, Paintbrush PC, Arc/Info, ASCII; Vector: SMT-List, Intergraph-SIF, AutoCad, Arc/Info, HPGL, ERDAS GIS, ILWIS 1.2, Atlas usemap, Arc-VTP list, Themak2, Cart-o-graphics.

System Linkages:

■ Integrated DBMS:

■ External DBMS supported: dBase Lotus

GIS Functionality:

■ Map Digitizing
■ Digital Map Editing
■ Topological Structuring
■ Network Flow Analysis
■ Cell-based (Raster) Modeling
■ Map Composition/Generation
■ Map Display & Query
■ Map Projection Changes; No. Supported: 20
■ Datum Changes; Datums Supported: 12 elipsoids
■ Vector Overlay Analysis
■ Surface Modeling
■ Buffer generation

Other Significant Functional Areas: Spatial modeling

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- □ Radiometric Corrections
- ■ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- □ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Color composites, principal component analysis

PRODUCT NAME: INFOCAD

Company/Organization

Name:	Digital Matrix Services, Inc.	Contact:	Daniel Haber
Address:	3191 Coral Way	Person(s):	
	Suite 900	Phone:	305 445 6100
	Miami, FL 33145 USA	Fax:	305 442 1823

Product Information

Product Name: InFoCAD

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

■ Other: Microsoft Windows NT

If UNIX, list vendors: IBM, SUN, DG, DEC, HP, SCO

Graphics Environments Supported: ■ X-Windows ■ Motif □ Open Look □ Sunview

■ Microsoft Windows

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: DMS Consulting Department works closely with hardware vendors acting as a value added reseller to provide customers with turnkey solutions.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

Basic (minimal) software system cost: $495 - 12,500 Describe: Depending on platform. Volume discounts available.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: ■ Worldwide □ Not Available □ Other:

Cost of support: □ Included in License ■ 5% of purchase price per year

Maintenance contract available for turnkey system? ■ Yes □ No

Cost of maintenance contract: 10% of purchase price per year

Software updates

Frequency: □ Annual ■ Semi-annual

Cost of updates: □ Included in Software License ■ Included with maintenance

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 2700 Number of Volumes: 4 Languages available: English

On-Line help: □ Basic ■ Context Sensitive ■ Hyper-Text □ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

- ■ Full Graphical User Interface
- ■ Single Screen ☐ Dual Screen

Batch capability: ☐ Yes ■ No

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers:
- ☐ Scanners:
- ☐ Frame Grabbers:
- ■ Tape: 150 MB/550 MB 1/4"
- ■ Diskette: 3.5"/5.25" floppys
- ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: ASCII and X-Terminals
- ■ Plotters: Thermal transfer, ink jet, electrostatic, pen
- ☐ Film Recorders:
- ■ Printers: HPGL, Postscript
- ■ Tape:
- ■ Diskette:

Exchange file formats supported: DAF, DXF, IGES, ETAK, TIGER, HPGL, SIF, DLG, MOSS

System Linkages:

- ■ Integrated DBMS: Relational
- ■ External DBMS supported: Through InFoTRAN
- ■ Macro language available for customizing/extending system $Free
- ■ Linkable libraries for data structure access $Free ■ FORTRAN ■ C ☐ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- ☐ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported:
- ■ Datum Changes; Datums Supported: NAD 27, 83
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Thematic Mapping, Network Routing, Raster-to-Vector Conversion Image Rectification, and Image Cropping.

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ☐ Radiometric Corrections
- ☐ Multi-Spectral Classification
- ☐ Radar Geocoding & Analysis
- ☐ Image Enhancement
- ☐ Spatial Filtering
- ☐ Fourier Analysis
- ☐ Multivariate Analysis/Statistical Analysis
- ☐ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Image Crop, Height Filtering, Tiling

PRODUCT NAME: INFOCAM

Company/Organization

Name:	Leica AG	Contact:	P. Sonnenfeld
Address:	Photogrammetry and Metrology	Person(s):	
	CH-5035 Unterentfelden	Phone:	+41 64 45 67 67
	Switzerland	Fax:	+41 64 43 07 34

Product Information

Product Name: INFOCAM

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 ■ VAX-VMS □ Macintosh

If UNIX, list vendors: UNIX available 1994

Graphics Environments Supported: □ X-Windows ■ Motif □ Open Look □ Sunview □ Microsoft Windows

Minimum Hardware/System Configuration: VAX station 4000 series, min. 24 MB, VMS system software

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent

Basic (minimal) software system cost: $20,000 Describe: Fixed data model, Fastplot, manipulation of geo-elements

Complete (fully capable) software system cost: $60,000 Describe: Cadastral applications, utilities, on-line photogrammetric data acquisition, plan and map generation, relational data base, input of field measurements (e.g., GPS).

Turnkey system (hardware & software) cost: $100,000 Describe: VAX station, digitizer, drum plotter, tape drive and printer; Full INFOCAM/ORACLE software.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: ■ Worldwide □ Not Available

Cost of support: ■ Included in License □ $ Per

Maintenance contract available for turnkey system? ■ Yes □ No

Cost of maintenance contract: 12% of software (per year)

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: mostly annual

Cost of updates: ■ Included in maintenance contract

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 800 Number of Volumes: 8 Languages available: English

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 34 (As of July 31, 1993)

Number of installations by continent:

South America: 1 Asia: 3 Europe: 30

Year of first installation: 1987

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: Calcomp, Benson, Summagraphics, GTCO, Koutron, Aristo

□ Scanners:

□ Frame Grabbers:

■ Tape: TK 50, TK 70, DAT's

■ Diskette: 3.5" (DS, HD)

■ CD-ROM

■ Others (e.g. GP): GPS, Wild GRE-314, GRM10, SD 2000, DSR15

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays

■ Plotters: CalComp, Hewlett-Packard, Benson, Graphtech (all with HPGL emulation), TA2/10/100 (flat-bed plotters)

□ Film Recorders

■ Printers: DEC LA75, LA210, LZ250

■ Tape: See above

■ Diskette: See above

Exchange file formats supported: DXF, ARC-INFO (generate), SUF-2, Gemini

System Linkages:

■ Integrated DBMS: Oracle

■ Macro language available for customizing/extending system

GIS Functionality:

■ Map Digitizing
■ Digital Map Editing
■ Topological Structuring
□ Network Flow Analysis
□ Cell-based (Raster) Modeling
■ Map Composition/Generation
■ Map Display & Query
□ Map Projection Changes; No. Supported
□ Datum Changes; Datums Supported:
■ Vector Overlay Analysis
■ Surface Modeling
■ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- □ Geometric Rectification
- □ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- □ Image Enhancement
- □ Spatial Filtering
- □ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling
- □ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Spatial index supported (e.g., quadtree);

PRODUCT NAME: ISROGIS

Company/Organization

Name:	National Remote Sensing Agency	Contact:	Prof. B. L. Deekshatulu
Address:	Balanagar	Person(s):	
	Hyderabad 500 037	Phone:	0842 278360
	India	Fax:	0842 278648

Product Information

Product Name: ISROGIS

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: ERA Software Systems (P) Ltd., Hyderabad, India

Graphics Environments Supported: ■ X-Windows □ Motif □ Open Look □ Sunview

□ Microsoft Windows

Minimum Hardware/System Configuration: PC 386, 8 MB RAM, 300 MB hard disk, 14" EGA monitor, 1.2 MB floppy drive.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: PC 386 system with UNIX, X-Windows and ISROGIS software.

Licensing/Pricing

■ Commercial Product

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $6000 Describe: ISROGIS (all modules)

Complete (fully capable) software system cost: $6000 Describe: See above

Turnkey system (hardware & software) cost: $12,000 Describe: PC 386 system as described and UNIX X-Windows and ISROGIS software.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: □ Worldwide □ Not Available ■ Other: Available in India

List supporting agencies and their phone numbers: M/S ERA Software Systems, Begumpet, Hyderabad, India -- phone: 849125.

Cost of support: □ Included in License □ $600 Per year

Maintenance contract available for turnkey system? □ Yes ■ No

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: As and when available

Cost of updates: □ Included in Software License ■ $600

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 600 Number of Volumes: 2 Languages available: English

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Year of first installation: May 1993

Technical/Functional

Maximum number of users supported: One

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: Calcomp-AQS12E

□ Scanners:

□ Frame Grabbers:

□ Tape:

■ Diskette: 1.2 Mb. floppy drive

□ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: 14", EGA color monitor

■ Plotters: Calcomp-AQS12E

□ Film Recorders:

■ Printers: Dot matrix printer

□ Tape:

■ Diskette: 1.2 Mb. floppy drive

Exchange file formats supported: DXF, DLG, ISROVISION, ASCII, etc.

System Linkages:

■ Integrated DBMS: INTEGRA SQL

■ External DBMS supported

■ Macro language available for customizing/extending system

GIS Functionality:

■ Map Digitizing	■ Map Display & Query
■ Digital Map Editing	■ Map Projection Changes; No. Supported: 4
■ Topological Structuring	■ Datum Changes; Datums Supported: 2
□ Network Flow Analysis	■ Vector Overlay Analysis
□ Cell-based (Raster) Modeling	□ Surface Modeling
■ Map Composition/Generation	■ Buffer generation

Image Processing Functionality:

■ Interactive Display	□ Image Enhancement
□ Geometric Rectification	■ Spatial Filtering
□ Image Mosaicing	□ Fourier Analysis
□ Radiometric Corrections	□ Multivariate Analysis/Statistical Analysis
□ Multi-Spectral Classification	□ Raster-GIS Modeling
□ Radar Geocoding & Analysis	■ Hardcopy Map Composition/Annotation

PRODUCT NAME: SATELLITE IMAGE PROCESSING SYSTEM

Company/Organization

Name:	National Remote Sensing Agency	Contact:	Prof. B. L. Deekshatulu
Address:	Balanagar	Person(s):	
	Hyderabad 500 037	Phone:	0842 278360
	India	Fax:	0842 278648

Product Information

Product Name: Satellite Image Processing System

Type of Product: ☐ GIS ☒ Image Processing ☐ AM/FM ☐ CAD

Operating Systems Supported: ☒ UNIX ☒ PC-DOS ☐ PC-OS/2 ☐ VAX-VMS ☐ Macintosh

☒ Other: XEMX

If UNIX, list vendors: SUN SPARC

Graphics Environments Supported: ☐ X-Windows ☐ Motif ☐ Open Look ☒ Sunview

☐ Microsoft Windows

Minimum Hardware/System Configuration: PC/AT 386, 160 MB disk, 4 MB RAM, interactive display

Turnkey system available? ☒ Yes ☐ No (Bundled Hardware & Software)

Licensing/Pricing

☒ Commercial Product

Licensed by: ☐ User ☒ System ☐ Site

Basic (minimal) software system cost: $3000

Complete (fully capable) software system cost: $10,000

Turnkey system (hardware & software) cost: $25,000

Support/Updates

Training assistance available: ☒ Courses ☐ Training Videos ☒ Tutorials

Software support available: ☐ Worldwide ☐ Not Available ☒ Other: In India

Cost of support: ☐ Included in License ☐ $600 Per

Maintenance contract available for turnkey system? ☒ Yes ☐ No

List maintenance agencies and their phone numbers: M/S SITA ELECTRONICS, HYDERABAD

Cost of maintenance contract: 12% of system cost

Software updates

Frequency: ☒ Annual ☐ Semi-annual

Documentation/Interface

System documentation available as: ☒ Hardcopy ☐ Electronic Files

Number of pages: 500 Number of Volumes: 3 Languages available: English

On-Line help: ☒ Basic ☐ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ☒ Command Line ☒ Windows (Some Graphics)

☐ Full Graphical User Interface

☒ Single Screen ☐ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 15 (As of July 31, 1993)
Year of first installation: 1990

Technical/Functional

Maximum number of users supported: 8
Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Calcomp, Summa Graphics
- □ Scanners:
- □ Frame Grabbers:
- ■ Tape: CTD, 1600bpi/6250bpi
- ■ Diskette: 1.2 MB 5 1/4" floppy; 1.44 MB 3 1/2" floppy
- ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays:
- ■ Film Recorders:
- ■ Tape:
- ■ Plotters:
- ■ Printers:
- ■ Diskette:

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ■ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

PRODUCT NAME: LAMPS

Company/Organization

Name: Laser-Scan, Inc.
Address: 45635 Willow Pond Plaza
Sterling, VA 20164
USA

Contact Person(s): W. Coleman (President)
Phone: 703 709 9306
Fax: 703 709 8629
E-Mail: WAYNE@LSIVA.COM

Product Information

Product Name: LAMPS (including VTRAK)

Type of Product: ☒ GIS ☐ Image Processing ☐ AM/FM ☐ CAD ☒ Other: Map production (+data conversion)

Operating Systems Supported: ☒ UNIX ☐ PC-DOS ☐ PC-OS/2 ☒ VAX-VMS ☐ Macintosh

If UNIX, list vendors: Digital Equipment Corporation, SUN Microsystems, IBM, HP

Graphics Environments Supported: ☐ X-Windows ☒ Motif ☐ Open Look ☐ Sunview ☐ Microsoft Windows

Minimum Hardware/System Configuration: Color workstation

Turnkey system available? ☒ Yes ☐ No (Bundled Hardware & Software)

If yes, describe: LAMPS is a complete digital map production system and GIS database system. It includes scanners, digitizing tables, workstations, plotters and film recorders, with optional image processing system. It provides raster to vector conversion (VTRAK product), update from imagery and cartographic quality output. Update from imagery, WYSIWYG map display.

Licensing/Pricing

☒ Commercial Product

Licensed by: ☒ User ☐ System ☐ Site

License fee is: ☒ One Time Charge ☐ Recurrent every

Basic (minimal) software system cost: $15K Describe: Map data output, normal and screen digitizing, edit and cartographic

Complete (fully capable) software system cost: $20-60K

Turnkey system (hardware & software) cost: $40-100K

Other Pricing Information: On application

Support/Updates

Training assistance available: ☒ Courses ☐ Training Videos ☐ Tutorials

Comments: Regular training courses in UK, US and by arrangement at customer sites.

Software support available: ☒ Worldwide ☐ Not Available

List supporting agencies and their phone numbers: Laser-Scan, Ltd. (UK) 44 223 420414 Laser-Scan, Inc. (USA) 703 709 9306; Laser-Scan, Inc. (CANADA) 819 568 2550.

Cost of support: ☐ Included in License ☒ 15% of capital cost

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: Laser-Scan, Ltd. (UK) 44 223 420414 Laser-Scan, Inc. (USA) 703 709 9306; Laser-Scan, Inc. (Canada) 819 568 2550.

Cost of maintenance contract: 15% percent capital cost

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: As required by upgrade development and bug fixes

Cost of updates: □ Included in Software License ■ Provided under support contract

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line ■ Windows (Some Graphics)

□ Full Graphical User Interface

■ Single Screen □ Dual Screen

User Base

Total number of installations: 133 (as of July 31, 1993)

Number of installations by continent:

North America: 20 South America: 2 Africa: 5 Asia: 10 Europe: 92

Australia: 2

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: ALTEK, TTDS, CALCOMP

■ Scanners: Dainippon (LS100), Anatech, SGI

□ Frame Grabbers:

□ Tape:

□ Diskette:

□ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

□ Displays:

■ Plotters: Versatec, Calcomp, HP, any posterprint plotter

■ Film Recorders: Banco Graphics

□ Printers:

□ Tape:

□ Diskette:

Exchange file formats supported: NFI (BS7507), DXF, Intergraph SIE, Arc Info, export Autocad, DXF, DLG

System Linkages:

■ Integrated DBMS: Optional Oracle or Ingres

■ Macro language available for customizing/extending system Yes

GIS Functionality:

- ☐ Map Digitizing
- ☐ Digital Map Editing
- ☐ Topological Structuring
- ☐ Network Flow Analysis
- ☐ Cell-based (Raster) Modeling
- ☐ Map Composition/Generation
- ☒ Map Display & Query
- ☒ Map Projection Changes; No. Supported: 30
- ☒ Datum Changes; Datums Supported: 40
- ☐ Vector Overlay Analysis
- ☒ Surface Modeling
- ☐ Buffer generation

Technical Features:

☒ Spatial index supported (e.g., quadtree); Describe: Continuous map database

Other Significant Technical Features: WYSIWYG Cartographic PR Representation; Binary, Greyscale, and color raster data conception; digital update.

PRODUCT NAME: LANDMARK & GEO/SQL

Company/Organization

Name:	ESC (Electical Systems Consultants)	Contact:	
Address:	212 W. Mulberry	Person(s):	John Fisher
	Ft. Collins, CO 80521	Phone:	303 224 9100
	USA	Fax:	303 224 9137

Product Information

Product Name: LandMark & GEO/SQL

Type of Product: ■ GIS □ Image Processing ■ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS ■ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

■ Microsoft Windows

Minimum Hardware/System Configuration: 486/33 w/8 MB RAM

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Can customize turnkey solutions which include hardware & software procurement as well as software & database customization. It may also include network installation and SCADA integration.

Licensing/Pricing

■ Commercial Product

Licensed by: □ User □ System □ Site ■ Other: Autodesk & Borland

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $4500 Describe: AutoCAD, LandMark & Paradox

Complete (fully capable) software system cost: $ Describe: Same as above

Turnkey system (hardware & software) cost: $9-10K Describe: 1 unit running DOS, Windows or UNIX

Other Pricing Information: Customization services range from $2K-10K

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials □ Other:

Comments: ESC provides on-the-job training.

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: AutoDesk through local dealer; Borland (408) 461 9155

Maintenance contract available for turnkey system? □ Yes ■ No

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: As needed

Cost of updates: □ Included in Software License ■ $ 75 - 500

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 2000 Number of Volumes: 10

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers:
- ■ Scanners:
- □ Frame Grabbers:
- ■ Tape:
- ■ Diskette:
- ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Display:
- ■ Plotters:
- ■ Film Recorders:
- ■ Printers:
- ■ Tape:
- ■ Diskette:

Exchange file formats supported: DXF, DXB, DWG, TIFF, ASCII

System Linkages:

- ■ External DBMS supported: Oracle, Paradox, DbaseIV, Ingress
- ■ Macro language available for customizing/extending system $
- ■ Linkable libraries for data structure access $ □ FORTRAN □ C ■ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Map Display & Query
- ■ Digital Map Editing
- □ Map Projection Changes; No. Supported:
- ■ Topological Structuring
- ■ Datum Changes; Datums Supported:
- ■ Network Flow Analysis
- □ Vector Overlay Analysis
- □ Cell-based (Raster) Modeling
- □ Surface Modeling
- ■ Map Composition/Generation
- □ Buffer generation

Image Processing Functionality:

- □ Interactive Display
- □ Image Enhancement
- □ Geometric Rectification
- □ Spatial Filtering
- □ Image Mosaicing
- □ Fourier Analysis
- □ Radiometric Corrections
- □ Multivariate Analysis/Statistical Analysis
- □ Multi-Spectral Classification
- □ Raster-GIS Modeling
- □ Radar Geocoding & Analysis
- ■ Hardcopy Map Composition/Annotation

PRODUCT NAME: LAS

Company/Organization

Name: EROS Data Center
Address: Mundt Federal Building
Sioux Falls, SD 57198 USA

Contact Person(s): Dan Etrheim
Phone: 605 594 6860
Fax: 605 594 6589
E-Mail: etrheim@edcserver1.cr.usgs.gov

Product Information

Product Name: LAS 5.2 (Land Analysis System)
Type of Product: □ GIS ■ Image Processing □ AM/FM □ CAD
Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh
If UNIX, list vendors: Silicon Graphics, Data General, SUN
Graphics Environments Supported: ■ X-Windows limited □ Motif □ Open Look □ Sunview
□ Microsoft Windows
Minimum Hardware/System Configuration: 2 GB disk, tape device (3480, 8mm, or 9-track) 8 or 24 bit color monitor
Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Public Domain: Costs for distribution/documentation? Available to Government agencies and universities only at cost of reproduction.

Support/Updates

Training assistance available: □ Courses □ Training Videos □ Tutorials
■ Other: Documentation with examples
Comments: Training may be available on a cost basis as needed.
Software support available: □ Worldwide ■ Not Available
Software updates
Frequency: ■ Annual □ Semi-annual □ Other: Updates distributed upon request.

Documentation/Interface

System documentation available as: □ Hardcopy ■ Electronic Files
On-Line help: ■ Basic □ Context Sensitive ■ Hyper-Text □ Not Available
User Interface: ■ Command Line □ Windows (Some Graphics) ■ Graphical User Interface
Batch capability: ■ Yes □ No

User Base

Total number of installations: 70 (As of July 31, 1993)
Number of installations by continent:
North America: 65 Africa: 2 Asia: 2 Europe: 1
Year of first installation: 1983

Technical/Functional

Maximum number of users supported: System dependent

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers:
- □ Scanners:
- □ Frame Grabbers:
- ■ Tape: 3480, 9-track, 8 mm, 4 mm
- □ Diskette:
- ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Display: X-Window type terminals
- ■ Plotters:
- ■ Film Recorders:
- ■ Printers: Laser
- ■ Tape: Same as above
- □ Diskette:

Exchange file formats supported: Transfer file

GIS Functionality:

- ■ Map Digitizing
- □ Digital Map Editing
- □ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- □ Map Composition/Generation
- □ Map Display & Query
- ■ Map Projection Changes; No. Supported: 30
- ■ Datum Changes; Datums Supported: 1
- □ Vector Overlay Analysis
- □ Surface Modeling
- □ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- □ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling
- □ Hardcopy Map Composition/Annotation

PRODUCT NAME: MAPBOX

Company/Organization

Name:	Decision Images, Inc.	Contact:	
Address:	9 Charlton Street	Person(s):	Bob Mills
	Princeton, NJ 08540	Phone:	609 683 0234
	USA	Fax:	609 683 4068

Product Information

Product Name: MapBox

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: □ Vector or ■ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Minimum Hardware/System Configuration: 386 PC with VGA graphics, hard disk, 640K memory

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Includes necessary PC and operating system for optimal use of MapBox.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $995 Describe: Educational; $1495 Government/commercial

Complete (fully capable) software system cost: $995 Describe:

Turnkey system (hardware & software) cost: $3000 Describe: Includes MapBox, documentation, 486 PC, 4 MB RAM, 80 MB hard drive, DOS and Windows, etc.

Support/Updates

Training assistance available: □ Courses □ Training Videos □ Tutorials

Comments: Supported by published book describing by the language it is based on: "GIS and Cartographic Modeling" by C. Dana Tomlin.

Software support available: ■ Worldwide □ Not Available □ Other:

List supporting agencies and their phone numbers: Distributors in 13 countries

Cost of support: ■ Included in License □ $ Per

Maintenance contract available for turnkey system? □ Yes ■ No

Software updates

Frequency: ■ Annual □ Semi-annual □ Other:

Cost of updates: □ Included in Software License □ $250/year

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 250 Number of Volumes: 2 Languages available: English

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

□ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 200+ (As of July 31, 1993)

Year of first installation: 1990

Technical/Functional

Maximum number of users supported: 1

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: VGA graphics

□ Plotters:

□ Film Recorders:

□ Printers:

□ Tape:

□ Diskette:

Exchange file formats supported: Arc/Info, ERDAS, OSU-Map, IDRISI, SPANS, etc.

GIS Functionality:

□ Map Digitizing

□ Digital Map Editing

□ Topological Structuring

■ Network Flow Analysis

■ Cell-based (Raster) Modeling

□ Map Composition/Generation

■ Map Display & Query

□ Map Projection Changes; No. Supported:

□ Datum Changes; Datums Supported:

□ Vector Overlay Analysis

■ Surface Modeling

■ Buffer generation

Other Significant Functional Areas: About time you got to the important part! Too many others to list. That's what the book is about!

Technical Features:

Other Significant Technical Features: Completely flexible raster modeling system capable of answering any raster modeling question.

PRODUCT NAME: RESOURCE

Company/Organization

Name: Decision Images, Inc.
Address: 9 Charlton Street
Princeton, NJ 08540 USA

Contact Person(s): Bob Mills
Phone: 609 683 0234
Fax: 609 683 4068

Product Information

Product Name: Resource
Type of Product: □ GIS ■ Image Processing □ AM/FM □ CAD
Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh
Minimum Hardware/System Configuration: 386 PC with hard disk
Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: Includes PC and special image-processing boards for high-resolution, full-color display, real time zoom, etc.

Licensing/Pricing

■ Commercial Product
Licensed by: ■ User □ System ■ Site
Basic (minimal) software system cost: $2750 Describe: Software only, includes 100+ image and GIS functions, vector and raster. Requires Imagraph, Number Nine, ATVista or Matrix image board.
Complete (fully capable) software system cost: $ Describe: Same as above
Turnkey system (hardware & software) cost: $7500 Describe: Includes PC and image board, all software and documentation.

Support/Updates

Software support available: ■ Worldwide □ Not Available
List supporting agencies and their phone numbers: Distributors in 13 countries
Cost of support: ■ Included in License □ $ Per
Maintenance contract available for turnkey system? □ Yes ■ No
Software updates
Frequency: ■ Annual □ Semi-annual □ Other:
Cost of updates: □ Included in Software License ■ $995 per year

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files
Number of pages: 400 Number of Volumes: 2 Languages available: English
On-Line help: □ Basic □ Context Sensitive ■ Hyper-Text □ Not Available
User Interface: □ Command Line □ Windows (Some Graphics)
■ Full Graphical User Interface
□ Single Screen ■ Dual Screen

Batch capability: ☐ Yes ■ No

User Base

Total number of installations: 100+ (As of July 31, 1993)
Year of first installation: 1985

Technical/Functional

Maximum number of users supported: 1
Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers:
- ■ Scanners: Summagraphics, Summasketch and compatible, Howtek, Sharp, Eikonix
- ■ Frame Grabbers: Matrix, Chorus, ATVista
- ■ Tape: 9-track, all satellite formats
- ☐ Diskette:
- ☐ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: 512 x 512 and 1024 x 1024 32-bit color
- ☐ Plotters:
- ■ Film Recorders: Matrix (AGFA), Kodak SVP
- ■ Printers: Tektronix inkjet and thermal
- ■ Tape: Any Pertec-compatible drive (most 9-tracks)
- ☐ Diskette:

Exchange file formats supported: LandSat, SPOT, DEM, GIRAS, DLG, DXF, many others
System Linkages:

- ■ Macro language available for customizing/extending system $
- ■ Linkable libraries for data structure access $ ☐ FORTRAN ■ C ■ Other
- ■ Source code available $ ☐ FORTRAN ■ C ■ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ☐ Topological Structuring
- ☐ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ☐ Map Projection Changes; No. Supported:
- ☐ Datum Changes; Datums Supported:
- ☐ Vector Overlay Analysis
- ☐ Surface Modeling
- ☐ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- ■ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ☐ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Technical Features:

Other Significant Technical Features: Runs on same hardware as ERDAS PC, but much faster.

PRODUCT NAME: ROOTSPRO

Company/Organization

Name: Decision Images, Inc.
Address: 9 Charlton Street
Princeton, NJ 08540 USA

Contact Person(s): Bob Mills
Phone: 609 683 0234
Fax: 609 683 4068

Product Information

Product Name: RootsPro
Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD
If GIS: ■ Vector or □ Raster Based
Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS ■ Macintosh
Minimum Hardware/System Configuration: PC 386 with VGA, hard disk
Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product
Licensed by: ■ User □ System ■ Site
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $995 Describe: Educational; $1495 Commercial/government
Complete (fully capable) software system cost: $Same Describe:

Support/Updates

Software support available: ■ Worldwide □ Not Available
List supporting agencies and their phone numbers: 13 distributors
Cost of support: ■ Included in License □ $ Per
Software updates
Frequency: □ Annual ■ Semi-annual □ Other:
Cost of updates: □ Included in Software License ■ $250/year

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files
Number of pages: 200 Number of Volumes: 1 Languages available: English
On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available
User Interface: □ Command Line ■ Windows (Some Graphics)
□ Full Graphical User Interface
■ Single Screen □ Dual Screen
Batch capability: □ Yes ■ No

User Base

Total number of installations: 300+ (As of July 31, 1993)

Year of first installation: 1989

Technical/Functional

Maximum number of users supported: 1

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: All serial port digitizers
- □ Scanners:
- □ Frame Grabbers:
- □ Tape:
- □ Diskette:
- □ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: VGA
- ■ Plotters: HPGL compatible
- □ Film Recorders:
- □ Printers:
- □ Tape:
- □ Diskette:

Exchange file formats supported: DLG, DXF, Atlas, Arc/Info, MapInfo, IDRISI, SPANS, etc.

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- □ Map Composition/Generation
- ■ Map Display & Query
- □ Map Projection Changes; No. Supported:
- □ Datum Changes; Datums Supported:
- □ Vector Overlay Analysis
- □ Surface Modeling
- □ Buffer generation

Technical Features:

Other Significant Technical Features: Real-time GIS topology verification and display as you digitize.

PRODUCT NAME: M.A.P.

Company/Organization

Name:	Geographic Management Systems	Contact:	Bert Roberts
Address:	Woodlands Lane, Woodlands Grange	Person(s):	Angela Tyers
	Almondsburg, Bristol BS20 OPD	Phone:	0454 618618
	UK	Fax:	0454 619024

Product Information

Product Name: M.A.P.

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Minimum Hardware/System Configuration: 386PC, 4 MB RAM, 40 MB drive

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: Hardware supplied as necessary - PC, Peripherals

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User ■ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $10,000 Describe: Single user, wide range of tools

Complete (fully capable) software system cost: $20,000 Describe: Single user full functionality

Turnkey system (hardware & software) cost: $16,000 Describe: PC + software

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: ■ Worldwide □ Not Available □ Other:

List supporting agencies and their phone numbers: In house team plus distributors

Cost of support: □ Included in License ■ $15% Per annum

Maintenance contract available for turnkey system? ■ Yes □ No

Cost of maintenance contract: $10% Per

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: As necessary

Cost of updates: □ Included in Software License ■ $ Within support and maintenance

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 600 Number of Volumes: 3 Languages available: English

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes ☐ No

User Base

Total number of installations: 150 (As of July 31, 1993)

Number of installations by continent:

Asia: 5 Europe: 12 Australia: 133

Technical/Functional

Maximum number of users supported: Unlimited within software

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers:
- ■ Scanners:
- ■ Frame Grabbers:
- ☐ Tape:
- ■ Diskette:
- ☐ CD-ROM:
- ■ Others (e.g. GP): GPS

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays:
- ■ Plotters:
- ☐ Film Recorders:
- ■ Printers:
- ☐ Tape:
- ■ Diskette:

Exchange file formats supported: All common formats

System Linkages:

- ■ Integrated DBMS:
- ■ External DBMS supported: All with SQL interface

GIS Functionality:

- ■ Map Digitizing
- ■ Map Display & Query
- ■ Digital Map Editing
- ■ Map Projection Changes; No. Supported: 5
- ☐ Topological Structuring
- ☐ Datum Changes; Datums Supported:
- ☐ Network Flow Analysis
- ■ Vector Overlay Analysis
- ☐ Cell-based (Raster) Modeling
- ☐ Surface Modeling
- ■ Map Composition/Generation
- ■ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ☐ Image Enhancement
- ☐ Geometric Rectification
- ☐ Spatial Filtering
- ☐ Image Mosaicing
- ☐ Fourier Analysis
- ☐ Radiometric Corrections
- ☐ Multivariate Analysis/Statistical Analysis
- ☐ Multi-Spectral Classification
- ■ Raster-GIS Modeling
- ☐ Radar Geocoding & Analysis
- ■ Hardcopy Map Composition/Annotation

PRODUCT NAME: MACGIS

Company/Organization

Name:	Institute for a Sustainable Env.	Contact:	David W. Hulse
Address:	School of Architecture	Person(s):	
	University of Oregon	Phone:	503 346 3672
	Eugene, OR 97403 USA	Fax:	503 346 3626
		E-Mail:	dhulse@AAA.UOREGON.EDU

Product Information

Product Name: MACGIS
Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD
If GIS: □ Vector or ■ Raster Based
Operating Systems Supported: □ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS ■ Macintosh
Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
□ Microsoft Windows ■ Other: Macintosh FINDER
Minimum Hardware/System Configuration: Mac II w/color monitor
Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product
Licensed by: ■ User □ System ■ Site
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $300
Complete (fully capable) software system cost: Same
Other Pricing Information: Academic & non-profit discounts

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials
Software support available: ■ Worldwide □ Not Available
List supporting agencies and their phone numbers: University of Oregon
Cost of support: ■ Included in License □ $ Per
Maintenance contract available for turnkey system? □ Yes ■ No
Software updates
Frequency: ■ Annual □ Semi-annual
Cost of updates: □ Included in Software License ■ $ Varies

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files
Number of pages: ~200 Number of Volumes: 1 Languages available: English, Russian
On-Line help: □ Basic □ Context Sensitive □ Hyper-Text ■ Not Available

User Interface: ■ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

□ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: ~800 (As of July 31, 1993)

Number of installations by continent:

North America: 700 South America: 10 Asia: 30 Europe: 50 Australia: 10

Year of first installation: 1987

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

□ Digitizers:	■ Scanners:
■ Frame Grabbers:	■ Tape:
■ Diskette:	■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

■ Display:	■ Plotters:
■ Film Recorders:	■ Printers:
■ Tape:	■ Diskette:

Exchange file formats supported: Photoshop, PICT, ERDAS, Arc GRID

GIS Functionality:

■ Map Digitizing	■ Map Display & Query
■ Digital Map Editing	□ Map Projection Changes; No. Supported:
□ Topological Structuring	□ Datum Changes; Datums Supported:
■ Network Flow Analysis	■ Vector Overlay Analysis
■ Cell-based (Raster) Modeling	■ Surface Modeling
■ Map Composition/Generation	■ Buffer generation

Other Significant Functional Areas: Multi-media and animation linkage; mathematicl modeling linkage

Image Processing Functionality:

■ Interactive Display	□ Image Enhancement
□ Geometric Rectification	■ Spatial Filtering
■ Image Mosaicing	■ Fourier Analysis
□ Radiometric Corrections	■ Multivariate Analysis/Statistical Analysis
□ Multi-Spectral Classification	■ Raster-GIS Modeling
□ Radar Geocoding & Analysis	■ Hardcopy Map Composition/Annotation

PRODUCT NAME: MADE

Company/Organization

Name:	Oyāsin Circle Solutions, Inc.	Contact:	Wendell A. Franks
Address:	Suite 210	Person(s):	
	1430 Florida Ave.	Phone:	303 651 7001
	Longmont, Colorado 80501 USA	Fax:	303 651 1317

Product Information

Product Name: MADE (Modelling Application Development Environment

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD ■ Other: ARC/INFO Users

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: DATA General, IBM, HP, SUN, DEC, SGI

Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look □ Sunview

□ Microsoft Windows ■ Other: ARC/INFO AML

Minimum Hardware/System Configuration: Any system which supports ESRI ARC/INFO. MADE is a graphics user interface, development environment for ARC/INFO. MADE uses less than 5 meg. of hard file space.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: OCSI can bundle ESRI ARC/INFO, DATA General hardware and our MADE product. Would have to discuss with vendors on international marketing. ARC/INFO GRID 6.1 plus DG530 workstation or 4605 server, MADE software.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: □ One Time Charge ■ Recurrent every three users

Basic (minimal) software system cost: $1995 Describe: Based on volume, price can be negotiated. This price good through 12/31/93. Price may increase at that time. Standard projected retail is $4995, $1995 is special introductory offer. New product, new company, one year old.

Complete (fully capable) software system cost: $1995

Support/Updates

Training assistance available: □ Courses ■ Training Videos ■ Tutorials

Comments: Training video completed 9/1/93

Software support available, cost of support: □ Included in License ■ $1000 per year

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: Maintenance for ESRI would be through country ESRI rep; maintenance for DATA General hardware through DATA General country rep; OCSI maintenance MADE for MADE through OCSI.

Cost of maintenance contract: Depends on hardware selected.

Software updates

Frequency: ■ Annual □ Semi-annual

Cost of updates: □ Included in Software License ■ $250.00

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 107 Number of Volumes: 4 Languages available: English

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: □ Yes ■ No

User Base

Total number of installations: 6 (As of July 31, 1993)

Number of installations by continent:

North America: 6

Year of first installation: 1993

Technical/Functional

Maximum number of users supported: Three users per license/negotiable

Input devices supported: List most common devices/formats/interfaces/etc. ESRI compatible

- ■ Digitizers
- ■ Scanners
- ■ Frame Grabbers
- ■ Tape
- ■ Diskette
- ■ CD-ROM
- ■ Others (e.g. GP): GPS

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays
- ■ Plotters
- □ Film Recorders:
- □ Printers:
- □ Tape:
- □ Diskette

Exchange file formats supported: ESRI compatable, all formats for GIS

System Linkages:

- ■ Integrated DBMS: INFO
- ■ External DBMS supported: All w/s RDBMS, ESRI compatible, ORACLE, SYBASE, INTERGRAPH, INGRES
- ■ Macro language available for customizing/extending system ESRI, AML
- ■ Source code available $500,000 □ FORTRAN □ C ■ Other: AML

GIS Functionality:

- ■ Map Digitizing
- ■ Map Display & Query
- ■ Digital Map Editing
- ■ Map Projection Changes; No. Supported:
- ■ Topological Structuring
- ■ Datum Changes; Datums Supported:
- ■ Network Flow Analysis
- ■ Vector Overlay Analysis
- ■ Cell-based (Raster) Modeling
- ■ Surface Modeling
- ■ Map Composition/Generation
- ■ Buffer generation

Other Significant Functional Areas: GIS ARC/INFO ESRI application developer, GIS modelling, version control.

Image Processing Functionality:

- ■ Interactive Display
- □ Geometric Rectification
- □ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- □ Image Enhancement
- □ Spatial Filtering
- □ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe:

Other Significant Technical Features: Greatly reduced learning curve for ARC/INFO, intutive point and click menu driven user interface, unique user profiles, rapid prototyping, version control, security networking, cut/paste/copy AML's.

PRODUCT NAME: MAPDATABASE, MAPDATALOG, MAPVIDEO

Company/Organization

Name: Nucor Hyper Technologies, Inc.
Address: Suite 300
135 Micheal Cowpland Dr.
Kanata, Ontario K2M 2E9
Canada

Contact Person(s): Ron Carriere
Phone: 613 592 8666
Fax: 613 592 5995

Product Information

Product Name: MapDataBase, MapDataLog, MapVideo
Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD ■ Other: Document Manager
If GIS: ■ Vector or ■ Raster Based
Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh
Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview ■ Microsoft Windows
Minimum Hardware/System Configuration: 386, 4 MB RAM
Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product
Licensed by: ■ User □ System □ Site
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $3500 Describe: Windows Version
Complete (fully capable) software system cost: $9000 Describe: DOS with EDIT module and layering module.
Turnkey system (hardware & software) cost: $ Describe: $6000 (386 series); to $10,000 (486-66), 16 MB RAM 340 MB disk, CD-ROM.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials
Software support available: ■ Worldwide □ Not Available
Cost of support: □ Included in License ■ 18% per year
Maintenance contract available for turnkey system? ■ Yes □ No
Cost of maintenance contract: 18% per year
Software updates
Frequency: □ Annual ■ Semi-annual
Cost of updates: □ Included in Software License ■ Per version

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files
Languages available: English, Italian, Portuguese

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen or ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 180 (As of July 31, 1993)

Number of installations by continent:

North America: 156 South America: 10 Africa: 1 Europe: 12 Australia: 1

Year of first installation: 1988

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Altek, Calcomp
- ■ Scanners: Any type TIFF, BMP
- ■ Frame Grabbers: Parallax, Viper
- ■ Tape
- ■ Diskette
- ■ CD-ROM
- ■ Others (e.g. GP):

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: SVGA High resolution RGB
- ■ Plotters: HPGL
- □ Film Recorders:
- ■ Printers: MS Windows
- ■ Tape:
- ■ Diskette:
- □ Others:

Exchange file formats supported: TIFF, BMP, NUC; Vectors-DXF ASCII

System Linkages:

- ■ Integrated DBMS: ZIM, Oracle, DBase
- ■ External DBMS supported: Oracle

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported:
- □ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- □ Surface Modeling
- □ Buffer generation

Other Significant Functional Areas: Image tiling; Document indexing with Fabric

Image Processing Functionality:

- ☐ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ☐ Multi-Spectral Classification
- ☐ Radar Geocoding & Analysis
- ■ Image Enhancement
- ☐ Spatial Filtering
- ☐ Fourier Analysis
- ☐ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Spatial Hyper indexing

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: Every pixel has geo-reference

PRODUCT NAME: MAPGRAFIX GIS

Company/Organization

Name:	ComGrafix, Inc.	Contact:	Michael Lawrence
Address:	620 "E" Street	Person(s):	
	Clearwater, FL 34616	Phone:	813 443 6807
	USA	Fax:	813 443 7585

Product Information

Product Name: MAPGRAFIX GIS

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: □ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS ■ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

□ Microsoft Windows ■ Other: Macintosh OS

Minimum Hardware/System Configuration: System 7.0 and 5 MB RAM Macintosh-IICI, Centris, Quadra

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

Basic (minimal) software system cost: $5000 Describe: First copy = $5,000; additional copies = $4250

Complete (fully capable) software system cost: $6500 Describe: MapGrafix GIS module = $4995; MapLink (Translation) = $995; MapView (Projection) = 495.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Comments: 5-day training session

Software support available: ■ Worldwide □ Not Available

Cost of support: □ Included in License ■ $500 per year

Software updates

Frequency: ■ Annual □ Semi-annual

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 800 Number of Volumes: 1 Languages available: English, French, German, Spanish, Japanese, Arabic

On-Line help: □ Basic □ Context Sensitive □ Hyper-Text ■ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 800 (As of July 31, 1993)

Number of installations by continent:

North America: 585 South America: 5 Asia: 50 Europe: 150 Australia: 10

Year of first installation: 1988

Technical/Functional

Maximum number of users supported: One

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: User configurable
- ■ Scanners:
- ■ Frame Grabbers:
- □ Tape:
- ■ Diskette:
- ■ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: Black and white and color
- ■ Plotters: HP, HI
- ■ Film Recorders:
- ■ Printers: Quickraw and Postscript
- □ Tape:
- ■ Diskette:

Exchange file formats supported: DXF, TIGER, OS, DLG3, ARC/INFO, CGIDS, TIFF

System Linkages:

- ■ External DBMS supported: 4D, FoxPro, Oracle, Sybase

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 15
- ■ Datum Changes; Datums Supported: 6
- ■ Vector Overlay Analysis
- □ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Raster/vector integration

Image Processing Functionality:

- ■ Interactive Display
- □ Geometric Rectification
- □ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- □ Image Enhancement
- □ Spatial Filtering
- □ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

PRODUCT NAME: MAPSAT

Company/Organization

Name: Cril Ingenierie
Address: 5 Avenue Marcel Dassault
31500 Toulouse, France

Contact: J. C. Buselli
Person(s): J. L. Boudineau/D. Jue
Phone: 61 20 45 45
Fax: 61 20 47 89

Product Information

Product Name: MAPSAT
Type of Product: □ GIS ■ Image Processing □ AM/FM □ CAD ■ Other: GIS data exchanged
Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh
Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look ■ Sunview □ Microsoft Windows
Minimum Hardware/System Configuration: UNIX station with 32 MB RAM and 400 MB disk capacity; window manager: X11/motif; Network: Ethernet TCP/IP, NFS.
Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: CRIL INGENIERIE realize of turnkey systems and technical assistance; an option can put TRIDYN IMAGE STATION which is a very high image memory up to 512 megabytes with possibility 1024 x 1024 pixels to 1536 x 1152 pixels (high definition) acquisition capabilities from standard sensors or a tape recorder.

Licensing/Pricing

■ Commercial Product
Licensed by: □ User ■ System □ Site
License fee is: □ One Time Charge ■ Recurrent
Basic (minimal) software system cost: $31,000 Describe: Software only
Turnkey system (hardware & software) cost: $131,000 Describe: TRIDYN MAPSAT (8000 x 8000 pixels)
Training assistance available: ■ Courses □ Training Videos ■ Tutorials
Comments: With 2 days in our training center or in the client center.
Software support available: ■ Worldwide □ Not Available
Cost of support: □ Included in License ■ 12% of catalog unit cost
Maintenance contract available for turnkey system? ■ Yes □ No
Cost of maintenance contract: 12% of catalog cost
Software updates
Frequency: □ Annual ■ Semi-annual

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files
Number of pages: 1000 Number of Volumes: 4
Languages available: French and English

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text ■ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 54 (As of July 31, 1993)

Number of installations by continent:

Africa: 4 Europe: 50

Year of first installation: 1989

Technical/Functional

Maximum number of users supported: 5

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers
- ■ Frame Grabbers: TRIDYN - ECRIN (Paralex card)
- ■ Tape: All supported by UNIX system
- ■ Diskette
- ■ CD-ROM

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: X Display - CCIR - 4.2.2
- ■ Printers: Mitsubishi, Canon
- ■ Tape: Streamer - Exabyte
- ■ Diskette

Exchange file formats supported: GIF - TIFF - POSTCRIP - ARCINFO

System Linkages:

- ■ External DBMS supported: ETHERNET TCP/IP, NFS
- ■ Macro language available for customizing/extending system
- ■ Linkable libraries for data structure access □ FORTRAN ■ C □ Other

GIS Functionality:

- ■ Map Digitizing
- □ Digital Map Editing
- ■ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- □ Map Display & Query
- □ Map Projection Changes; No. Supported
- □ Datum Changes; Datums Supported
- □ Vector Overlay Analysis
- □ Surface Modeling
- □ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- □ Radiometric Corrections
- ■ Multi-Spectral Classification
- ■ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ■ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: DTM visualization and manipulation; image calibration; development tool kit; vector data import and export.

Technical Features:

Other Significant Technical Features: The system has its own database. The system allows user programs development and integration.

PRODUCT NAME: MAPVIEWER

Company/Organization

Name: Golden Software, Inc.
Address: 809 14th Street
Golden, Colorado 80401 USA

Contact Person(s): Greg Johnson
Phone: 303 279 1021
Fax: 303 279 0909

Product Information

Product Name: MapViewer

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD
■ Other: Thematic Mapping
If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh
■ Other: MS Windows

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
■ Microsoft Windows

Minimum Hardware/System Configuration: Must be able to run Windows 3.1 in standard or enhanced mode (recommend a 386 with 2 MB of RAM).

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: $249 for software and manual (including boundary files).

Licensing/Pricing

■ Commercial Product
Licensed by: ■ User □ System □ Site
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $249 Describe: Includes disks, manual and toll-free technical support.
Complete (fully capable) software system cost: $249
Turnkey system (hardware & software) cost: $249
Other Pricing Information: Additional boundary files at $20/disk

Support/Updates

Training assistance available: □ Courses □ Training Videos ■ Tutorials ■ Other
Software support available: □ Worldwide □ Not Available ■ Other: Toll-free in U.S.
Cost of support: ■ Included in License □ $
Software updates
Frequency: ■ Annual □ Semi-annual
Cost of updates: □ Included in Software License ■ $10-79

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files
Number of pages: 400+ Number of Volumes: 1 Languages available: English

On-Line help: ☐ Basic ■ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

☐ Single Screen ■ Dual Screen

Batch capability: ☐ Yes ■ No

User Base

Total number of installations: Not available (As of July 31, 1993)

Year of first installation: 1990

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: ☐ Scanners:

☐ Frame Grabbers: ☐ Tape:

☐ Diskette: ☐ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: Any Microsoft Windows supported interface

■ Plotters: Any supported by Microsoft Windows 3.1

■ Film Recorders: Any supported by Microsoft Windows 3.1

■ Printers: Any supported by Microsoft Windows 3.1

☐ Tape:

■ Diskette: Any supported by Microsoft Windows 3.1

Exchange file formats supported: Imports BNA, DXF files

System Linkages:

■ Integrated DBMS: Integrated spreadsheet

GIS Functionality:

■ Map Digitizing ☐ Map Display & Query

■ Digital Map Editing ■ Map Projection Changes; No. Supported: 3

☐ Topological Structuring ☐ Datum Changes; Datums Supported:

☐ Network Flow Analysis ☐ Vector Overlay Analysis

☐ Cell-based (Raster) Modeling ☐ Surface Modeling

☐ Map Composition/Generation ☐ Buffer generation

Other Significant Functional Areas: Thematic Mapping - Hatch, dot density, bar, scaled-symbol, pie and prism maps

Image Processing Functionality:

■ Interactive Display ☐ Image Enhancement

☐ Geometric Rectification ☐ Spatial Filtering

☐ Image Mosaicing ☐ Fourier Analysis

☐ Radiometric Corrections ■ Multivariate Analysis/Statistical Analysis

☐ Multi-Spectral Classification ☐ Raster-GIS Modeling

☐ Radar Geocoding & Analysis ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: See above description

PRODUCT NAME: MICROBRIAN

Company/Organization

Name:	MPA Communications Pty. Ltd.	Contact:	Hal Shuster
Address:	37-51 Lusher Rd.	Person(s):	
	Croydon, Victoria 3136	Phone:	61 3 724 4488
	Australia	Fax:	61 3 724 4455

Product Information

Product Name: microBRIAN

Type of Product: ☐ GIS ☒ Image Processing ☐ AM/FM ☐ CAD

Operating Systems Supported: ☐ UNIX ☒ PC-DOS ☐ PC-OS/2 ☐ VAX-VMS ☐ Macintosh ☐ Other

If UNIX, list vendors: Up-coming Windows and Windows NT

Graphics Environments Supported: ☐ X-Windows ☐ Motif ☐ Open Look ☐ Sunview ☒ Microsoft Windows ☒ Other: Super VGA

Minimum Hardware/System Configuration: 386 PC with 4 MB memory, 150 MB hard disk, mono card and monitor and color SVGA monitor.

Turnkey system available? ☒ Yes ☐ No (Bundled Hardware & Software)

If yes, describe: Complete computer hardware various configurations with software loaded and tested. Also peripheral equipment such as hard copy output (ink jet printer, thermal transfer printers, electrostatic plotters, di-sublimation printers, dot matrix and line printers, magnetic tape drives (1600 and 6250 BPI), EXABYTE and DAT streaming tape drives and image scanning and digitizing devices.

Licensing/Pricing

☒ Commercial Product

Licensed by: ☐ User ☒ System ☐ Site

License fee is: ☒ One Time Charge ☐ Recurrent every

Basic (minimal) software system cost: $ Describe: First license - US$18,000; second license - US$9000, each subsequent license - US$4500; Special educational pricing: research - US$10,000, $5,000, $3000; teaching - 5 pack US$5,000 and 10 pack US$8000.

Complete (fully capable) software system cost: $ Describe: As previous: microBRIAN is supplied only in its complete form. It is not broken down into separately priced modules.

Other Pricing Information: Contact vendor

Support/Updates

Training assistance available: ☒ Courses ☐ Training Videos ☐ Tutorials

Comments: Custom training courses provided according to need

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: MPA bulletin board distributors (contact vendor)

Cost of support: □ Included in License ■ 15% of license cost

Maintenance contract available for turnkey system? ■ Yes □ No

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: Every 3 to 4 months

Cost of updates: □ Included in Software License ■ Included in support cost

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of Volumes: 5 plus user manual Languages available: English

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line □ Windows (Some Graphics)

□ Full Graphical User Interface

□ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 250 (As of July 31, 1993)

Number of installations by continent:

North America: 1 Africa: 3 Asia: 73 Europe: 3 Australia: 170

Year of first installation: 1985

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: Summagraphics compatible

■ Scanners: Eikonix, Sharp, H-P

□ Frame Grabbers:

■ Tape: CCT Pertec compatible controllers, tape streamers, Exabyte, DAT drives; SCSI interfaces

■ Diskette: 5.25 and 3.5; SCSI

■ CD-ROM: SCSI

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: Super VGA (any size)

■ Plotters: Ink Jet, Tektronix, H-P

□ Film Recorders:

■ Printers: Serial and parallel dot matrix, line, laser

■ Tape: CCT Pertec compatible controllers; tape streamers, Exabyte, DAT drives; SCSI interfaces

■ Diskette: 5.25 and 3.5; SCSI

Exchange file formats supported: Any common file format will be accomodated

System Linkages:

- ☒ Macro language available for customizing/extending system
- ☒ Linkable libraries for data structure access $Negotiable ☒ FORTRAN ☐ C
  ☒ Other

Image Processing Functionality:

☒ Interactive Display	☒ Image Enhancement
☒ Geometric Rectification	☒ Spatial Filtering
☒ Image Mosaicing	☒ Fourier Analysis
☒ Radiometric Corrections	☒ Multivariate Analysis/Statistical Analysis
☒ Multi-Spectral Classification	☐ Raster-GIS Modeling
☒ Radar Geocoding & Analysis	☐ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Contact vendor

PRODUCT NAME: **MICROGIS**

Company/Organization

Name:	Mizar, Inc.	Contact:	Mark S. Millman
Address:	1580 Lincoln	Person(s):	
	Suite 510	Phone:	303 830 0506
	Denver, CO 80203	Fax:	303 830 0315
	USA	E-Mail:	mmillman@mizar.COM

Product Information

Product Name: MICROGIS

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS ■ Macintosh

■ Other: Windows-NT

If UNIX, list vendors: INTERGRAPH, HP/APPOLLO, SUN, IBM RS/6000, DEC ALPHA/NT

Graphics Environments Supported: □ X-Windows ■ Motif □ Open Look □ Sunview

□ Microsoft Windows

Minimum Hardware/System Configuration: 16 megabyte PC-386+; 24 megabyte UNIX station; 20 megabyte MacIntosh

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every + annual maintenance

Basic (minimal) software system cost: $3500 USD Describe: Package is complete for one price of $3500 USD + $500 USD/yr maintenance.

Complete (fully capable) software system cost: $3500 USD Describe:

Support/Updates

Training assistance available: ■ Courses ■ Training Videos □ Tutorials

Software support available: ■ Worldwide □ Not Available □ Other:

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: Included in $500 USD/yr maintenance

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 150 Number of Volumes: 1

On-Line help: □ Basic ■ Context Sensitive ■ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: □ Yes ■ No

User Base

Total number of installations: 50 (As of July 31, 1993)

Number of installations by continent:

North America: 45 Europe: 2 Australia: 3

Year of first installation: 1992

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc. All items in these categories are a function of MicroStation which supports almost all popular interfaces.

- □ Digitizers:
- □ Scanners:
- □ Frame Grabbers:
- □ Tape:
- □ Diskette:
- □ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- □ Display:
- □ Plotters:
- □ Film Recorders:
- □ Printers:
- □ Tape:
- □ Diskette:

System Linkages:

- ■ External DBMS supported: Oracle, X-Base

GIS Functionality:

- ■ Map Digitizing
- ■ Map Display & Query
- ■ Digital Map Editing
- ■ Map Projection Changes; No. Supported: 4
- ■ Topological Structuring
- □ Datum Changes; Datums Supported:
- □ Network Flow Analysis
- ■ Vector Overlay Analysis
- □ Cell-based (Raster) Modeling
- ■ Surface Modeling
- ■ Map Composition/Generation
- ■ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- □ Image Enhancement
- ■ Geometric Rectification
- □ Spatial Filtering
- ■ Image Mosaicing
- □ Fourier Analysis
- □ Radiometric Corrections
- □ Multivariate Analysis/Statistical Analysis
- □ Multi-Spectral Classification
- □ Raster-GIS Modeling
- □ Radar Geocoding & Analysis
- □ Hardcopy Map Composition/Annotation

Technical Features:

Other Significant Technical Features: Requires MicroStation from Intergraph

PRODUCT NAME: NO NAME

Company/Organization

Name:	Instituto Geografico Nactional	Contact:	A. Arozarena Villar
Address:	Gral. Ibáñez de Ibero, 3	Person(s):	P. Vivax White
	CP 28003 Madrid, Spain	Phone:	34 1 533 28 00
		Fax:	34 1 5349536

Product Information

Product Name: No Name Given

Type of Product: □ GIS ■ Image Processing □ AM/FM □ CAD

Operating Systems Supported: □ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh
■ Other: Fujitsu F-IV OS - F4

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
□ Microsoft Windows ■ Other: Matra-Pictral

Minimum Hardware/System Configuration: Pictral (Matra) al host Fujitsu

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Technical/Functional

Maximum number of users supported: 80

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Calcomp
- ■ Scanners: Calcomp
- □ Frame Grabbers:
- ■ Tape: High and low density; audio-tape
- ■ Diskette: 3 1/2" al 5 1/4" MS-DOS compatible
- ■ CD-ROM: CD-R al CD-WROM

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: 1024 x 1024 x 24 color display
- ■ Plotters: HR PloHors al Calcomp Plotters
- ■ Film Recorders: Optronics C-4300
- ■ Printers:
- ■ Tape: High and low density
- ■ Diskette:
- ■ Others: Hard copy DIN-A4 and DIN-A3

Exchange file formats supported: Only Raster remote sensing standard format

Image Processing Functionality:

□ Interactive Display	■ Image Enhancement
■ Geometric Rectification	■ Spatial Filtering
■ Image Mosaicing	□ Fourier Analysis
■ Radiometric Corrections	■ Multivariate Analysis/Statistical Analysis
■ Multi-Spectral Classification	□ Raster-GIS Modeling
□ Radar Geocoding & Analysis	■ Hardcopy Map Composition/Annotation

PRODUCT NAME: OBJECTMAP

Company/Organization

Name:	Ultimap Corp.	Contact:	Vice President/Product Mgmt.
Address:	2520 Pilot Knob Rd. #190	Person(s):	John Peterson
	St. Paul, MN 55120	Phone:	612 688 1500
	USA	Fax:	612 688 1505
		E-Mail:	jcp@umap.com

Product Information

Product Name: ObjectMap

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS ■ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: HP, IBM, SUN

Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look □ Sunview ■ Microsoft Windows

Minimum Hardware/System Configuration: RISC based workstation, 600 meg. storage, 32 meg. RAM, HI-RES color monitor.

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Public Domain: Costs for distribution/documentation? Call for university program

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: Call for latest pricing

Complete (fully capable) software system cost: Same as above

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: □ Worldwide □ Not Available ■ Other: USA

Cost of support: □ Included in License ■ Call for latest pricing (monthly)

Maintenance contract available for turnkey system? □ Yes ■ No

Software updates

Frequency: □ Annual ■ Semi-annual

Cost of updates: ■ Included in maintenance contract

Documentation/Interface

System documentation available as: □ Hardcopy ■ Electronic Files

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 50+ (As of July 31, 1993)

Number of installations by continent:

North America: 50+

Year of first installation: 1977

Technical/Functional

Maximum number of users supported: Unlimited

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers □ Scanners

■ Frame Grabbers ■ Tape

■ Diskette ■ CD-ROM

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: HI-RES workstation color monitors, X-terminals, PC VGA using X-Window software

■ Plotters

□ Film Recorders

■ Printers

■ Tape

■ Diskette

Exchange file formats supported: Call for latest list

System Linkages:

■ Integrated DBMS

■ External DBMS supported: Any that can support external communications.

■ Macro language available for customizing/extending system Smalltalk

■ Linkable libraries for data structure access □ FORTRAN ■ C ■ Other Smalltalk

■ Source code available □ FORTRAN □ C ■ Other Smalltalk

GIS Functionality:

■ Map Digitizing ■ Map Display & Query

■ Digital Map Editing ■ Map Projection Changes; No. Supported:

■ Topological Structuring ■ Datum Changes; Datums Supported:

□ Network Flow Analysis □ Vector Overlay Analysis

□ Cell-based (Raster) Modeling □ Surface Modeling

■ Map Composition/Generation ■ Buffer generation

Other Significant Functional Areas: The GIS can be embedded into other software.

Image Processing Functionality:

- ■ Interactive Display
- □ Geometric Rectification
- □ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- □ Image Enhancement
- □ Spatial Filtering
- □ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling
- □ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: Voronoi Tessellation
- ■ Object oriented architecture; Describe: Pure OO Language (Smalltalk); true integration with an OODBMS.

Other Significant Technical Features: The product can be used as a stand-alone GIS, as an embedded module in other software, or as class libraries in OO software development projects.

PRODUCT NAME: OzGIS

Company/Organization

Name:	The Clever Company	Contact:	Lloyd Simons
Address:	QMDD Box 6108	Person(s):	
	Queanbeyan 2620	Phone:	+61 6 236 3216
	Australia	Fax:	+61 6 236 3216
		E-Mail:	lws@itd.dsto.gov.au

Product Information

Product Name: OzGIS Version 10.2

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

■ Other: MS Windows

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview

■ Microsoft Windows ■ Other: Interactor

Minimum Hardware/System Configuration: DOS - PC286, 640K, EGA, Hark Disk

Windows 3.1 - PC386, 4MG RAM

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent every:

Basic (minimal) software system cost: US $520 Describe: A $750. Discounts for additional licenses/educational institutions; price firm until end of 93.

Other Pricing Information: Evaluation/shareware versions available for both DOS/Windows 3.1. E.G. Anonymous FTP sites on Internet such as archie.au.

Support/Updates

Training assistance available: □ Courses □ Training Videos ■ Tutorials

Comments: Training/examples included

Software support available: □ Worldwide □ Not Available ■ Other: From developer

Cost of support: ■ Included in License

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: Frequent

Cost of updates: □ Included in Software License ■ Half new price

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 200 Number of Volumes: 1 Languages available: English

On-Line help: ■ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

☒ Full Graphical User Interface

☒ Single Screen ☐ Dual Screen

Batch capability: ☐ Yes ☒ No

User Base

Total number of installations: 500+ (As of July 31, 1993)

Year of first installation: 1982

Technical/Functional

Maximum number of users supported: Single user

Input devices supported: List most common devices/formats/interfaces/etc.

☐ Digitizers: ☐ Scanners:

☐ Frame Grabbers: ☐ Tape:

☒ Diskette ☒ CD-ROM

Output devices supported: List most common devices/formats/interfaces/etc.

☒ Displays: Super VGA/ALL Windows

☒ Plotters: HPGL compatible

☐ Film Recorders:

☒ Printers: Most PC printers

☐ Tape:

☒ Diskette:

Exchange file formats supported: DLG-3, DXF, MapInfo, Atlas, Gina, VPF, WK1, delimited ASCII, IDRISI, TIGER, STFIA, etc.

System Linkages:

☒ External DBMS supported: VIA export formats

☒ Macro language available for customizing/extending system $ included

☒ Linkable libraries for data structure access Available late 1993 ☒ FORTRAN ☒ C ☐ Other

GIS Functionality:

☐ Map Digitizing ☒ Map Display & Query

☐ Digital Map Editing ☒ Map Projection Changes; No. Supported 20

☒ Topological Structuring ☐ Datum Changes; Datums Supported:

☐ Network Flow Analysis ☒ Vector Overlay Analysis

☐ Cell-based (Raster) Modeling ☐ Surface Modeling

☒ Map Composition/Generation ☐ Buffer generation (available 1994)

Other Significant Functional Areas: Analysis of related attribute data; retail/planning applications; 14 menus of options.

PRODUCT NAME: SITE COMP

Company/Organization

Name: Land Innovation, Inc.
Address: 7359 Berkshire Ct.
Maple Grove, MN 55311 USA

Contact Person(s): Larie E. Kornes
Phone: 612 420 6811
Fax: 612 420 9792

Product Information

Product Name: SITE COMP

Type of Product: ■ GIS □ Image Processing □ AM/FM ■ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: HP, IBM, Apple, SCO, SUN, UNIVEL, DELL, OPEN 88

Graphics Environments Supported: ■ X-Windows ■ Motif □ Open Look □ Sunview □ Microsoft Windows

Minimum Hardware/System Configuration: 300 MB disk, 16 MB RAM, 3 button mouse, 1024X768 graphics

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: HP 700 Workstation installed with our software

Licensing/Pricing

■ Commercial Product

Licensed by: □ User □ System ■ Site ■ Other: Workstation/X Station/Terminal

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $1995+ Describe: The map is created and edited in "SITE COMP SURVEYOR" which costs $3,995. "SITE COMP GIS" views and manipulates data, adds/changes attribute data costs $1,995 each.

Turnkey system (hardware & software) cost: $Depends on configuration

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials ■ Other: Mentoring/coaching

Comments: "SITE COMP GIS" can be learned in less than two hours.

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: All support done by our corporate headquarters.

Cost of support: □ Included in License ■ $300 Per Year

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: Hewlett-Packard

Cost of maintenance contract: $Varies

Software updates

Frequency: ☐ Annual ■ Semi-annual

Cost of updates: ☐ Included in Software License ■ $200-500

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 300 (30 GIS) Number of Volumes: 1 Languages available: English

On-Line help: ■ Basic ■ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ☐ Dual Screen

Batch capability: ■ Yes ■ No

User Base

Total number of installations: Not available (As of July 31, 1993)

Year of first installation: 1978

Technical/Functional

Maximum number of users supported: No maximum

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: Calcomp, Summagraphics, Hewlett Packard

☐ Scanners:

☐ Frame Grabbers:

■ Tape: Any supported by UNIX

■ Diskette: Any support by UNIX

■ CD-ROM: Any supported by UNIX

Output devices supported: List most common devices/formats/interfaces/etc.

☐ Displays:

■ Plotters: HP, Calcomp, HI, much more. Must support HP-GL

☐ Film Recorders:

■ Printers: Most

■ Tape: Most

■ Diskette: Most

Exchange file formats supported: DXF, DGN, Arc/Info

System Linkages:

■ Integrated DBMS:

■ External DBMS supported: D-Base; will customize others

GIS Functionality:

■ Map Digitizing
■ Digital Map Editing
■ Topological Structuring
☐ Network Flow Analysis
☐ Cell-based (Raster) Modeling
■ Map Composition/Generation
■ Map Display & Query
■ Map Projection Changes; No. Supported:
■ Datum Changes; Datums Supported:
■ Vector Overlay Analysis
■ Surface Modeling
■ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- □ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- □ Image Enhancement
- □ Spatial Filtering
- □ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

PRODUCT NAME: SMALLWORLD GIS

Company/Organization

Name:	Smallworld Systems	Contact:	Marcomms
Address:	Brunswick House	Person(s):	Joy Haigh
	61-69 Newmarket Road	Phone:	44 223 460199
	Cambridge CB5 8EG	Fax:	44 223 460210
	UK	E-Mail:	joyhaigh@smallworld.co.uk

Product Information

Product Name: SMALLWORLD GIS

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: SUN, DEC, IBM, HP

Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look □ Sunview

□ Microsoft Windows

Minimum Hardware/System Configuration: 32 MB memory, 500 MB disk, UNIX workstation

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: SWGIS + appropriate hardware and peripherals

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: £8000 Describe: Functional module for example data capture

Complete (fully capable) software system cost: $46,500 Describe: Complete GIS incorporating application development tools, data capture system and full analysis suite and output modules.

Turnkey system (hardware & software) cost: $65,000 Describe: GIS and appropriate hardware

Other Pricing Information: Object modelling module £8000; Data capture module £8000; Object analysis module £8000; Object output module £500.

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: ■ Worldwide □ Not Available

Cost of support: ■ Included in License □ $ Per

Maintenance contract available for turnkey system? ■ Yes □ No

Cost of maintenance contract: 1% purchase price per month

Software updates

Frequency: ☐ Annual ☐ Semi-annual ■ Other:

Cost of updates: ■ Included in Software License ☐ $

Documentation/Interface

System documentation available as: ■ Hardcopy ☐ Electronic Files

Number of Volumes: 12+ Languages available: English

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ☐ Dual Screen

User Base

Total number of installations: 100+ (As of July 31, 1993)

Year of first installation: 1990

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

☐ Digitizers:

■ Scanners: GTX Group 4, LRD, RLC, TIFF, SUNRAS, COT

☐ Frame Grabbers:

■ Tape: EXABYTE, QICISO, RDAT, TKSO, TAR

■ Diskette: High Density 1.44 Mb, 3.5"

☐ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

☐ Displays:

■ Plotters: Calcomp (PCI format), HPGL2, Precision image AO +A1 plotters, Postscript

☐ Film Recorders:

■ Printers: Any that hardware manufacturer support

■ Tape: EXABYTE, QICISO, RDAT, TKSO, TAR

☐ Diskette:

System Linkages:

■ Integrated DBMS

■ External DBMS supported

■ Source code available

GIS Functionality:

■ Map Digitizing	■ Map Display & Query
■ Digital Map Editing	■ Map Projection Changes; No. Supported:
■ Topological Structuring	☐ Datum Changes; Datums Supported:
■ Network Flow Analysis	■ Vector Overlay Analysis
☐ Cell-based (Raster) Modeling	■ Surface Modeling
☐ Map Composition/Generation	■ Buffer generation

Other Significant Functional Areas: Multi-user version management, seamless mapping, integratedraster and vector, case tool, application configuration environment (A.C.E.).

Technical Features:

- **Spatial index supported (e.g., quadtree); Describe:** Quadtree
- **Object oriented architecture; Describe:** O.O development environment

Other Significant Technical Features: Distributed database architecture, version managed database, embedded case tool.

PRODUCT NAME: SOFTRISK

Company/Organization

Name:	Impact Research Group, Ltd.	Contact:	Michael Morrow
Address:	PO Box 34251, Stn. D	Person(s):	Donald Williams
	Vancouver, B.C.	Phone:	604 736 0012
	V52 1B8 Canada	Fax:	604 736 8370

Product Information

Product Name: SOFTRISK
Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD
If GIS: □ Vector or ■ Raster Based
Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh
Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
□ Microsoft Windows ■ Other:
Minimum Hardware/System Configuration: IBM compatible PC, 386 25 mhz or better, 8 MB RAM
Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: Third-party hardware and peripheral software can be quoted.

Licensing/Pricing

■ Commercial Product
Licensed by: ■ User □ System ■ Site
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $8900
Complete (fully capable) software system cost: $8900
Turnkey system (hardware & software) cost: $Varies
Other Pricing Information: Corporate and site licenses available.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials
Software support available: ■ Worldwide □ Not Available
List supporting agencies and their phone numbers: Impact research group: 604 736 0012
Cost of support: □ Included in License ■ $1335 per program per year
Maintenance contract available for turnkey system? ■ Yes □ No
Cost of maintenance contract: Included in support contract
Software updates
Frequency: □ Annual ■ Semi-annual □ Other:
Cost of updates: □ Included in Software License ■ $Included in support contract

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files
Number of Volumes: 1 Languages available: English/French
On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)
☒ Full Graphical User Interface
Batch capability: ☒ Yes ☐ No

User Base

Total number of installations: 24 (As of July 31, 1993)
Number of installations by continent:
North America: 24
Year of first installation: 1991

Technical/Functional

Maximum number of users supported: Unlimited - LAN/Site license available
Input devices supported: List most common devices/formats/interfaces/etc.
☐ Digitizers:
☒ Scanners: Black/white and color scanners
☐ Frame Grabbers:
☒ Tape:
☒ Diskette:
☐ CD-ROM:
Output devices supported: List most common devices/formats/interfaces/etc.
☒ Display: EGA/VGA/SVGA monitors, large screen projection technologies touch screens
☐ Plotters:
☐ Film Recorders:
☒ Printers:
☒ Tape:
☒ Diskette:
Exchange file formats supported: DXF, BMP, PCX, TIF, GIF, DBASE III & IV, ASCII, Paradox
System Linkages:
☒ Integrated DBMS: Paradox
GIS Functionality:

☐ Map Digitizing	☒ Map Display & Query
☐ Digital Map Editing	☐ Map Projection Changes; No. Supported:
☐ Topological Structuring	☐ Datum Changes; Datums Supported:
☐ Network Flow Analysis	☐ Vector Overlay Analysis
☐ Cell-based (Raster) Modeling	☐ Surface Modeling
☐ Map Composition/Generation	☐ Buffer generation

Other Significant Functional Areas: Site planning, resource management functions
Image Processing Functionality:

☒ Interactive Display	☐ Image Enhancement
☐ Geometric Rectification	☐ Spatial Filtering
☐ Image Mosaicing	☐ Fourier Analysis
☐ Radiometric Corrections	☐ Multivariate Analysis/Statistical Analysis
☐ Multi-Spectral Classification	☐ Raster-GIS Modeling
☐ Radar Geocoding & Analysis	☐ Hardcopy Map Composition/Annotation

PRODUCT NAME: SPANS GIS, IMAGE, MAP

Company/Organization

Name:	Tydac Technologies, Ltd.	Contact:	Dr. Mike Clark
Address:	2 Venture Road	Person(s):	Mr. Andrew Day
	Chilworth Research Center	Phone:	0703 760824
	Southampton SO1 7NP UK	Fax:	0703 760944

Product Information

Product Name: SPANS GIS, IMAGE, MAP

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD
■ Other: Mapping/decision support
If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS ■ PC-OS/2 □ VAX-VMS □ Macintosh
If UNIX, list vendors: IBM, SUN, DATA GENERAL, DEC, SILICON GRAPHICS

Graphics Environments Supported: ■ X-Windows ■ Motif □ Open Look □ Sunview
□ Microsoft Windows

Minimum Hardware/System Configuration: 386 PC, 6 MB RAM (PC version), 16 MB RAM, 300 MB disk (UNIX).

Licensing/Pricing

■ Commercial Product
Licensed by: □ User □ System ■ Site
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $995 Describe: Entry level GIS packaging full range of entry level functionality including interfaces to other GIS systems data, data base access, and a range of simple GIS modeling tools.
Complete (fully capable) software system cost: $22,000 Describe: State-of-the-art GIS focusing on modeling and analysis designed to the end user. SPANS enables organizations and professionals to build and integrate spatial databases and to carry out complex analyses through both user written and hard-wired models and equations.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials
Software support available: ■ Worldwide □ Not Available
Cost of support: □ Included in License □ 12% of price per year
Software updates
Frequency: ■ Annual □ Semi-annual
Cost of updates: ■ Included in Software License

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files
Number of pages: 450 Number of Volumes: 4 Languages available: English, French

On-Line help: ☐ Basic ■ Context Sensitive ■ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ☐ Dual Screen

Batch capability: ■ Yes ☐ No

User Base

Total number of installations: 3000 (As of July 31, 1993)

Number of installations by continent:

North America: 1800 South America: 200 Africa: 200 Asia: 300 Europe: 450

Australia: 50

Year of first installation: 1982

Technical/Functional

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: TDS, Numonics, IBM, GTCO
- ☐ Scanners:
- ☐ Frame Grabbers:
- ☐ Tape:
- ☐ Diskette:
- ☐ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: VGA or better
- ■ Plotters: All support by the operating system
- ☐ Film Recorders:
- ■ Printers: All support by OS
- ☐ Tape:
- ☐ Diskette:

Exchange file formats supported: ARCEXPORT, DXF, NTF, GINA, IFF, SIF, DLG, DIME, ETAK, TIGER, CLDS, DEMI, DEM 7-5, ERDAS, LMIC, MPC, PCI, Terra-Mar, Micro Brian, TIF, PCX, ATLAS, DIGEST

System Linkages:

- ■ Integrated DBMS: DS Vista, Oracle
- ■ External DBMS supported: Generic Table link (API)
- ■ Macro language available for customizing/extending system $8000

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 82
- ☐ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- □ Radiometric Corrections
- ■ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ■ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling
- □ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: Quadtree
- ■ Object oriented architecture; Describe: SPANS Map
- ■ Expert system capability; Describe: Lines developed to include link to expert systems.

PRODUCT NAME: SPASE

Company/Organization

Name:	Geotech Computer Systems, Inc.	Contact:	David W. Rich, Ph.D.
Address:	7338 S. Alton Way, #16F	Person(s):	
	Englewood, CO 80112	Phone:	303 740 9432
	USA	Fax:	303 740 9542

Product Information

Product Name: SPASE

Type of Product: □ GIS □ Image Processing □ AM/FM □ CAD ■ Other: Spatial DBMS

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh
■ Other: DOS/WINDOWS

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
■ Microsoft Windows

Minimum Hardware/System Configuration: Minimum 286, 2 MB RAM, 10 MB HD, Monographics or EGA; Recommended 386, 4 MB RAM, 40-100 MB HD, VGA or SUPER VGA; digitizer, printer and plotter optional.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: GEOTECH can provide complete systems (computer, software, peripherals) in a variety of configurations.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $2000 U.S. Describe: Basic product is $2000 for domestic U.S. sites; optional petroleum module (PETRO SPASE) is $1500 additional; optional environmental module (ENVIRO SPASE) is $1000 additional. Software used outside the U.S. and Canada costs 30% more.

Complete (fully capable) software system cost: $3500 for SPASE and PETRO (see above); $3000 for SPASE and ENVIRO (see above).

Turnkey system (hardware & software) cost: $ Describe: Varies depending on hardware options.

Other Pricing Information: 20% per year for optional maintenance and support.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: ■ Worldwide □ Not Available □ Other:

Cost of support: □ Included in License ■ 20% per year

Maintenance contract available for turnkey system? ■ Yes □ No

Cost of maintenance contract: Varies

Software updates

Frequency: ☐ Annual ☐ Semi-annual ☒ Other: As needed - several times per year

Documentation/Interface

System documentation available as: ☒ Hardcopy ☒ Electronic Files

Number of pages: 300-600 Number of Volumes: 1-3 Languages available: English

On-Line help: ☒ Basic ☐ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

☒ Full Graphical User Interface

☒ Single Screen ☒ Dual Screen

Batch capability: ☒ Yes ☐ No

User Base

Total number of installations: 120 (As of July 31, 1993)

Number of installations by continent:

North America: 110 South America: 2 Africa: 3 Asia: 3 Europe: 2

Year of first installation: 1990

Technical/Functional

Maximum number of users supported: One per license

Input devices supported: List most common devices/formats/interfaces/etc.

☒ Digitizers: Any serial digitizer with x/y output in ASCII or Binary

☐ Scanners:

☐ Frame Grabbers:

☒ Tape: As supported by tape utilties

☒ Diskette: As supported by the operating system

☒ CD-ROM: As supported by CD ROM utilities

Output devices supported: List most common devices/formats/interfaces/etc.

☒ Display: Any Windows supported display including super VGA

☒ Plotters: Any Windows supported plotter including HP & HI

☐ Film Recorders:

☒ Printers: Any Windows supported printer including LASER, INKJET & DOT MATRIX

☒ Tape: As supported by tape utilities

☒ Diskette: As supported by the operating system

Exchange file formats supported: Input - DLG, DXF, TIGER, HPGL, ASCII, DBF; output - DXF, HPGL, POSTSCRIPT, ASCII

System Linkages:

☒ Integrated DBMS: Fully spatial relational DBMS with SQL-Base language

☒ External DBMS supported: Can link to most relational RDBMS such as Oracle, DB2, INGRES, SQL Server, etc.

☒ Macro language available for customizing/extending system $ Included

☒ Linkable libraries for data structure access $Included ☐ FORTRAN ☐ C ☐ Other

☒ Source code available $By negotiation ☐ FORTRAN ☒ C ☐ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- □ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 7
- □ Datum Changes; Datums Supported:
- □ Vector Overlay Analysis
- □ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: User-definable menus, complete programming language, integrated map and list displays; user-configurable symbol sets.

Technical Features:

Other Significant Technical Features: SQL-based query system fully integrated with spatial data storage allowing spatial functions to be used in SQL queries. Supports DDE AND DLL integration with other Windows programs.

PRODUCT NAME: SPRING

Company/Organization

Name:	INPE-National Inst. Space Research	Contact:	Image Proc. Division
Address:	PO Box 515	Person(s):	Mr. Gilberto Câmara
	12201-970 Sao Jośe dos Campos, SP	Phone:	55 123 41 8977, Ext. 372
	Brazil	Fax:	55 123 21 8743
		E-Mail:	gilberto@dpi.inpe.br

Product Information

Product Name: SPRING

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: SUN, HP, IBM, Silicon Graphics; DEC

Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look □ Sunview

■ Microsoft Windows

Minimum Hardware/System Configuration: UNIX: 32 MbB memory, 600 MB disk, 8 bit display; WINDOWS/DOS: 8 MB memory, 400 MB disk, Super VGA.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: □ User □ System □ Site ■ Other: IBM-Brazil and others

Complete (fully capable) software system cost: $20,000

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials

Software support available: ■ Worldwide □ Not Available

Software updates

Frequency: □ Annual ■ Semi-annual

Documentation/Interface

System documentation available as: □ Hardcopy ■ Electronic Files

Languages available: Portuguese, English

On-Line help: ■ Basic □ Context Sensitive □ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

□ Single Screen □ Dual Screen

Batch capability: □ Yes ■ No

User Base

Total number of installations: 50 (As of July 31, 1993)

Number of installations by continent:

South America: 50

Year of first installation: 1992

Technical/Functional

Maximum number of users supported: Not limited

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers:
- ■ Scanners: Input in TIFF and RLE formats
- □ Frame Grabbers:
- ■ Tape: 1600/6250 bpi magnetic reel tape; QIC-150 streamer tape, 8 mm tape
- □ Diskette:
- □ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: X-Window 8 and 24 bit
- ■ Plotters: CALCOMP, VERSATEC (inc. electrostatic), HP DraftMaster
- □ Film Recorders:
- □ Printers:
- □ Tape:
- □ Diskette:

Exchange file formats supported: ARC-INFO, SIF (Intergraph), SPANS, AutoCAD, ERDAS

System Linkages:

- ■ Integrated DBMS: Codebase (D-Base IV Compliant)
- ■ External DBMS supported: INGRES, ORACLE, SYBASE, INFORMIX
- ■ Linkable libraries for data structure access □ FORTRAN □ C ■ Other: C++

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 14
- ■ Datum Changes; Datums Supported:
- □ Vector Overlay Analysis
- ■ Surface Modeling
- □ Buffer generation

Other Significant Functional Areas: Digital Terrain Modelling

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- ■ Radar Geocoding & Analysis
- □ Image Enhancement
- ■ Spatial Filtering
- □ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Image Segmentation (region classifier)

Technical Features:

- Spatial index supported (e.g., quadtree); Describe: "r-tree" used for spatial data analysis and display.
- Object oriented architecture; Describe: Object-oriented data model used for integration of raster/vection data; development language is C++.

Other Significant Technical Features: Integration of raster and vector data in a single interface

PRODUCT NAME: STAR CARTO

Company/Organization

Name:	Star Informatic	Contact Person(s):	
Address:	Avenue du Pré Aily 24		
	B-4031 ANGLEUR, Liege	Phone:	+32 41 67 53 13
	Belgium	Fax:	+32 41 67 17 11

Product Information

Product Name: STAR CARTO

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: HP, IBM, SUN, SILICON GRAPHICS

Graphics Environments Supported: ■ X-Windows □ Motif □ Open Look □ Sunview

□ Microsoft Windows

Minimum Hardware/System Configuration: 32 MB RAM, 1 GB DISK, High Resolution Color Screen (for UNIX workstation); PC486, 16 MB RAM, 800 MB Disk (for DOS).

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User □ System □ Site ■ Other: Degressive fee for multiuser license

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $20,000 Describe: "CX CARTO FIRST", module "CX0" and "CX1": enables the user to structure, input and manage graphics information only.

Complete (fully capable) software system cost: $40,000 Describe: CX CARTO EXPERT, module "CX0" and "CX5": This version allows surveyors to input all information categories and to stock the graphics and alphanumericals databases. The macro-command programming module can be used to add to the functionalities of the STAR CARTO FIRST product and customize the presentation of the software for more specialized use.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: □ Worldwide □ Not Available ■ Other: Local distribution

List supporting agencies and their phone numbers: See enclosed list

Cost of support: □ Included in License ■ $15%/2.5% license fee per first/others license

Maintenance contract available for turnkey system? □ Yes ■ No

List maintenance agencies and their phone numbers: Same as below

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: Four times a year

Cost of updates: □ Included in Software License ■ Included in maintenance

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: ±1000 Number of Volumes: 8

Languages available: French, Dutch, German, Italian, Spanish, Portuguese, Japanese, Danish, Greek, Russian

On-Line help: □ Basic □ Context Sensitive □ Hyper-Text ■ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 180 (As of July 31, 1993)

Number of installations by continent:

Europe: 180

Year of first installation: 1989

Technical/Functional

Maximum number of users supported: No software limits

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Calcomp, OCE, Aristo, Summagraphics, TDS, Mantissa
- ■ Scanners: HP, Sharp, Canon
- □ Frame Grabbers:
- ■ Tape: Those of workstation constructor
- ■ Diskette: Those of workstation constructor
- ■ CD-ROM:
- ■ Others (e.g. GP): PSION, DAT-DDS

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: Those of workstation constuctor
- ■ Plotters: HP, OCE, Calcomp, Xerox
- □ Film Recorders:
- ■ Printers: Hewlett-Packard, Canon
- ■ Tape: Those of workstation constructor
- ■ Diskette: Those of workstation constructor
- ■ Others: DAT

Exchange file formats supported: Vector: DXF, IGES, EDIGEO, Carinelli, GPS, Topologis, DSUF; Raster: TIFF, HPGL2, Starbase, XWD, GIF, Paint, RAW, JFIF, PCX, COT, Sun RasterFile, PBM (with compression algorithms)

System Linkages:

- ■ Integrated DBMS: C-ISAM
- ■ External DBMS supported: ORACLE, SYBASE, INFORMIX, SQL/DS, INGRES + L4G UNIFACE
- ■ Macro language available for customizing/extending system $5000

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- □ Map Composition/Generation
- □ Map Display & Query
- □ Map Projection Changes; No. Supported:
- □ Datum Changes; Datums Supported:
- □ Vector Overlay Analysis
- □ Surface Modeling
- □ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- □ Geometric Rectification
- □ Image Mosaicing
- □ Radiometric Corrections
- □ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- □ Fourier Analysis
- □ Multivariate Analysis/Statistical Analysis
- □ Raster-GIS Modeling
- □ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Spatial index supported (e.g., quadtree); Describe: Proprietary system
- ■ Object oriented architecture; Describe: Integration of maps in the 3D modeling; module (CX7-8).

PRODUCT NAME: STATMAP III FOR WINDOWS

Company/Organization

Name: Geovision, Inc.
Address: 5680 Peachtree Parkway
Norcross, GA 30092 USA

Contact Person(s): Kenneth S. Shain
Phone: 404 448 8224
Fax: 404 447 4525

Product Information

Product Name: StatMap III for Windows

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD
If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
■ Microsoft Windows

Minimum Hardware/System Configuration: Intel 80x86 based CPU, 2 MB RAM (4+ recommended), 70 MB hard disk, mouse, VGA display, CD-ROM (optional), MS-DOS 5.0+, MS-Windows 3.1

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: PC preconfigured with software

Licensing/Pricing

■ Commercial Product
Licensed by: ■ User ■ System ■ Site
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $595 Describe: Initial installation is $595 with $95 charge for each additional seat.
Complete (fully capable) software system cost: $595
Turnkey system (hardware & software) cost: $3000 - 5000 Describe: Depends on desired system configuration (CPU, RAM, HP, Display).

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials
Comments: As per client requirements

Software support available: ■ Worldwide □ Not Available
List supporting agencies and their phone numbers: As per client requirements
Cost of support: □ Included in License ■ $Negotiable

Maintenance contract available for turnkey system? ■ Yes □ No
Cost of maintenance contract: $Negotiable

Software updates
Frequency: □ Annual □ Semi-annual ■ Other: Periodic updates
Cost of updates: □ Included in Software License ■ $95 after 1 year

Documentation/Interface

System documentation available as: ☒ Hardcopy ☐ Electronic Files

Number of pages: 150 Number of Volumes: 1 Languages available: English

On-Line help: ☐ Basic ☒ Context Sensitive ☒ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ☒ Windows (Some Graphics)

☐ Full Graphical User Interface

☒ Single Screen ☐ Dual Screen ☒ Multiple Windows

Batch capability: ☒ Yes ☐ No

User Base

Total number of installations: 2000 (As of July 31, 1993)

Number of installations by continent:

North America: 1980 South America: 5 Africa: 2 Asia: 5 Europe: 6

Australia: 2

Year of first installation: 1992

Technical/Functional

Maximum number of users supported: As per network requirements

Input devices supported: List most common devices/formats/interfaces/etc.

☐ Digitizers:

☐ Scanners:

☐ Frame Grabbers:

☐ Tape:

☒ Diskette:

☒ CD-ROM: For use with CD-ROM data sources

☒ Others (e.g. GP): Mouse

Output devices supported: List most common devices/formats/interfaces/etc.

☒ Display: All Windows supported devices

☒ Plotters: All Windows supported devices

☒ Film Recorders: All Windows supported devices

☒ Printers: All Windows supported devices

☐ Tape:

☒ Diskette: All Windows supported devices

Exchange file formats supported: Uses TIGER file input; also supports DXF, DBF, XLS, BMP, and ASCII

System Linkages:

☒ External DBMS supported: dBase, Q & E, superbase (Oracle, Access and paradox via DBF)

☒ Macro language available for customizing/extending system $ Use Excel

☒ Source code available $Negotiable ☐ FORTRAN ☒ C ☐ Other

GIS Functionality:

- ☐ Map Digitizing
- ☐ Digital Map Editing
- ☐ Topological Structuring
- ☐ Network Flow Analysis
- ☐ Cell-based (Raster) Modeling
- ☐ Map Composition/Generation
- ■ Map Display & Query
- ☐ Map Projection Changes; No. Supported:
- ☐ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ☐ Surface Modeling
- ☐ Buffer generation

Other Significant Functional Areas: Matches user-supplied data to geographic coordinate file for the statistical analysis of data. Permits the use of third-party spreadsheets and database managers for data modeling and manipulation.

Technical Features:

- ■ Object oriented architecture; Describe: Generates object-based maps for analysis

PRODUCT NAME: TIGER TOOLS FOR WINDOWS

Company/Organization

Name:	Geovision, Inc.	Contact:	Kenneth S. Shain
Address:	5680 Peachtree Pkwy.	Person(s):	
	Norcross, GA 30092 USA	Phone:	404 448 8224
		Fax:	404 447 4525

Product Information

Product Name: TIGER TOOLS for Windows

Type of Product: □ GIS □ Image Processing □ AM/FM □ CAD
■ Other: Geo-processing utility
If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
■ Microsoft Windows

Minimum Hardware/System Configuration: Intel 80x86 CPU, 2 MB RAM (4 MB recommended), 70 MB HD, mouse, VGA display, CD-ROM (if using CD-ROM based data sources), MS-DOS 5.0+, MS-Windows 3.1+

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product
Licensed by: ■ User ■ System □ Site
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $500 Describe: TIGER TOOLS for Windows is a general purpose geo-processing utility for the extraction, editing and reformatting on TIGER-based records and features.
Complete (fully capable) software system cost: $500

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials
Comments: See U.S. Census Bureau for TIGER training

Software support available: ■ Worldwide □ Not Available □ Other:
List supporting agencies and their phone numbers: See U.S. Census Bureau for TIGER support

Software updates
Frequency: □ Annual □ Semi-annual ■ Other: Periodic updates
Cost of updates: □ Included in Software License ■ $ T.B.D.

Documentation/Interface

System documentation available as: ☒ Hardcopy ☐ Electronic Files

Number of pages: 150 + TIGER DOCS Number of Volumes: 1 (plus TIGER DOCS)

Languages available: English

On-Line help: ☐ Basic ☒ Context Sensitive ☒ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ☒ Windows (Some Graphics)

☐ Full Graphical User Interface

☒ Single Screen ☐ Dual Screen ☒ Multiple Windows

Batch capability: ☒ Yes ☐ No

User Base

Total number of installations: 500 (As of July 31, 1993)

Number of installations by continent:

North America: 495 South America: 1 Africa: 1 Asia: 1 Europe: 1

Australia: 1

Year of first installation: 1989

Technical/Functional

Maximum number of users supported: As per network requirements

Input devices supported: List most common devices/formats/interfaces/etc.

☐ Digitizers:

☐ Scanners:

☐ Frame Grabbers:

☐ Tape:

☒ Diskette:

☒ CD-ROM:

☒ Others (e.g. GP): Mouse

Output devices supported: List most common devices/formats/interfaces/etc.

☒ Display: All Windows supported devices

☒ Plotters: All Windows supported devices

☒ Film Recorders: All Windows supported devices

☒ Printers: All Windows supported devices

☒ Tape: All Windows supported devices

☒ Diskette: All Windows supported devices

☐ Others:

Exchange file formats supported: Accepts TIGER input; outputs TIGER, DXF, DBF, XLS, BMP and ASCII

System Linkages:

☒ External DBMS supported: All DBF supported programs

☒ Macro language available for customizing/extending system $Negotiable

☒ Linkable libraries for data structure access $Negotiable ☐ FORTRAN ☒ C ☐ Other

☒ Source code available $50,000 ☐ FORTRAN ☒ C ☐ Other

GIS Functionality:

- ☐ Map Digitizing
- ☐ Digital Map Editing
- ☐ Topological Structuring
- ☐ Network Flow Analysis
- ☐ Cell-based (Raster) Modeling
- ☒ Map Composition/Generation
- ☐ Map Display & Query
- ☐ Map Projection Changes; No. Supported:
- ☐ Datum Changes; Datums Supported:
- ☐ Vector Overlay Analysis
- ☐ Surface Modeling
- ☐ Buffer generation

Other Significant Functional Areas: Extraction of TIGER records by feature class polygon or subset; editing of "raw" TIGER records; conversion and reformatting of TIGER records for use with third party products.

Technical Features:

- ☒ Object oriented architecture; Describe: Generates objects from TIGER feature classes

PRODUCT NAME: WINDOWS/ON THE WORLD

Company/Organization

Name: Geovision, Inc.
Address: 5680 Peachtree Parkway
Norcross, GA 30092 USA

Contact Person(s): Kenneth S. Shain
Phone: 404 448 8224
Fax: 404 448 1330

Product Information

Product Name: Windows/On the World

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD

Operating Systems Supported: □ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

Graphics Environments Supported: □ X-Windows □ Motif □ Open Look □ Sunview
■ Microsoft Windows

Minimum Hardware/System Configuration: Intel 80x86 CPU, 2 MB RAM, 40 MB HD, mouse, VGA/EGA display, CD-ROM, MS-DOS 3.1+, MS-Windows 3.0+

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: GEODESK: PC configured with CD-ROM and preconfigured with software.

Licensing/Pricing

■ Commercial Product

Licensed by: ■ User ■ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $595 Describe: Includes Windows/On the World application software and GEOdisc U.S. Atlas CD-ROM database based on USGS 1:2,000,000 scale DLG interlinked with DOC GNIS.

Complete (fully capable) software system cost: $595

Turnkey system (hardware & software) cost: $Negotiable Describe: As per client requirments and choice of CPU, RAM, HD, Display and CD-ROM drive.

Support/Updates

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: As per client requirements

Software updates

Frequency: □ Annual □ Semi-annual ■ Other: Periodic updates

Cost of updates: □ Included in Software License ■ $75

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 250 Number of Volumes: 2 Languages available: English

On-Line help: □ Basic □ Context Sensitive ■ Hyper-Text □ Not Available

User Interface: ☐ Command Line ☒ Windows (Some Graphics)
☐ Full Graphical User Interface
☒ Single Screen ☐ Dual Screen
Batch capability: ☒ Yes ☐ No

User Base

Total number of installations: 2000 (As of July 31, 1993)
Number of installations by continent:
North America: 1900 South America: 10 Africa: 10 Asia: 20 Europe: 50 Austral

Technical/Functional

Maximum number of users supported: As per network requirements
Input devices supported: List most common devices/formats/interfaces/etc.
☒ Digitizers:
☒ Scanners:
☐ Frame Grabbers:
☐ Tape:
☒ Diskette:
☒ CD-ROM:
☒ Others (e.g. GP): Mouse, GPS
Output devices supported: List most common devices/formats/interfaces/etc.
☒ Display: All Windows supported devices
☒ Plotters: All Windows supported devices
☒ Film Recorders: All Windows supported devices
☒ Printers: All Windows supported devices
☒ Tape: All Windows supported devices
☒ Diskette: All Windows supported devices
☒ Others: All Windows supported devices
Exchange file formats supported: DLG, ASCII, Windows Clipboard (DXF translator also available)
System Linkages:
☒ Integrated DBMS: GNIS
☒ External DBMS supported: ASCII input (lists-batch)
☒ Linkable libraries for data structure access $Negotiable ☐ FORTRAN ☒ C ☐ Other
☒ Source code available $50,000 ☐ FORTRAN ☒ C ☐ Other
GIS Functionality:

☒ Map Digitizing	☒ Map Display & Query
☒ Digital Map Editing	☐ Map Projection Changes; No. Supported:
☒ Topological Structuring	☐ Datum Changes; Datums Supported:
☐ Network Flow Analysis	☒ Vector Overlay Analysis
☐ Cell-based (Raster) Modeling	☐ Surface Modeling
☒ Map Composition/Generation	☐ Buffer generation

Other Significant Functional Areas: Calculates distance, area and converts into user-specified units of measure.

Technical Features:

Other Significant Technical Features: Next version (Ver 4.0) will contain support for Defense Mapping Agency (DMA) Digital Chart of the World (DCW) and Vector Product Format (VPF). International co-developers and co-marketers please inquire.

PRODUCT NAME: SYNARC

Company/Organization

Name:	Geomath, Inc.	Contact:	Jean-Louis Gelot
Address:	7660 Woodway, Suite 250	Person(s):	James H. Galbraith
	Houston, TX 77063 USA	Phone:	713 266 7501
		Fax:	713 266 0530

Product Information

Product Name: SynARC

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: SUN, DEC, HP

Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look □ Sunview

□ Microsoft Windows

Minimum Hardware/System Configuration: 32-bit processor, 16 or 19" screen, 16 MB RAM, 256 color display, 500 MB hard disk, 3-button mouse.

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System □ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $28,000 Describe: Includes SynARC/SynBASE, ARC/INFO executables and mapping package; discounted $4,000 if ARC/INFO is already installed.

Other Pricing Information: Highly discounted for universities; discounts for multiple copies; floating license available.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: ■ Worldwide □ Not Available

Cost of support: □ Included in License ■ 12% of license fee per year

Software updates

Frequency: □ Annual ■ Semi-annual

Cost of updates: □ Included in Software License ■ Included in support

Documentation/Interface

System documentation available as: ■ Hardcopy □ Electronic Files

Number of pages: 333 Number of Volumes: 1 Languages available: French, English

On-Line help: □ Basic ■ Context Sensitive □ Hyper-Text □ Not Available

User Interface: ■ Command Line ■ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 24 (As of July 31, 1993)

Number of installations by continent:

North America: 1 South America: 1 Europe: 22

Year of first installation: 1993

Technical/Functional

Maximum number of users supported: No limit

Input devices supported: List most common devices/formats/interfaces/etc.

□ Digitizers:

□ Scanners:

□ Frame Grabbers:

■ Tape: UNIX tape drive

■ Diskette: Floppy UNIX drive

■ CD-ROM: UNIX drive

Output devices supported: List most common devices/formats/interfaces/etc.

■ Displays: Color XII

■ Plotters: Versatec, Oce, HPGL, Tektronix, any UNIRAS compatible

□ Film Recorders:

■ Printers: HP Paintjet XL

□ Tape:

□ Diskette:

Exchange file formats supported: DXF, IGES, IGN-DEM, ASCII, Binary, USGS-DEM, GIS-SPOT, MOSS, GENERATE, ARC/INFO export.

System Linkages:

■ Integrated DBMS: ARC/INFO

■ Macro language available for customizing/extending system Included

■ Linkable libraries for data structure access $ ■ FORTRAN ■ C □ Other

GIS Functionality:

□ Map Digitizing

■ Digital Map Editing

■ Topological Structuring

□ Network Flow Analysis

■ Cell-based (Raster) Modeling

■ Map Composition/Generation

■ Map Display & Query

■ Map Projection Changes; No. Supported:

■ Datum Changes; Datums Supported: All ARC/INFO

■ Vector Overlay Analysis

■ Surface Modeling

■ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- □ Radiometric Corrections
- ■ Multi-Spectral Classification
- □ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- □ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Other Significant Functional Areas: Math, Trigonometry, Boolean Algebra, Raster-to-Vector and Vector-to-Raster Conversions, Multivariate statistics, convolution filters & structuring elements, crossplots histograms, rose diagrams.

Technical Features:

Other Significant Technical Features: Designed by Earth scientists for mining, oil, underground water, exploration, and environmental studies.

PRODUCT NAME: TNTmips™

Company/Organization

Name:	MicroImages	Contact:	
Address:	201 N. 8th Street	Person(s):	Dr. Lee D. Miller
	Lincoln, NE 68508-1347	Phone:	402 477 9554
	USA	Fax:	402 477 9559

Product Information

Product Name: Map and Image Processing (TNTmips™)

Type of Product: ■ GIS ■ Image Processing ■ AM/FM ■ CAD
■ Other: Desktop map making

If GIS: ■ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX ■ PC-DOS □ PC-OS/2 □ VAX-VMS ■ Macintosh
■ Other: Microsoft Windows 3.1 & Microsoft NT
If UNIX, list vendors: SUN, IBM, DEC, Silicon Graphics, Data General, HP, SCO, etc.

Graphics Environments Supported: ■ X-Windows ■ Motif □ Open Look □ Sunview
■ Microsoft Windows

Minimum Hardware/System Configuration: 386, 486, 586 PC's running Microsoft Windows V3.1 w/8 MB memory or Microsoft Windows-NT w/16 MB memory; MAC running A/ux w/8 MB; Workstations running UNIX w/16 MB.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)
If yes, describe: For INTEL PC's & DEC Alpha PC's only.

Licensing/Pricing

■ Commercial Product
Licensed by: □ User ■ System □ Site ■ Other: Floating multi/single user
License fee is: ■ One Time Charge □ Recurrent every
Basic (minimal) software system cost: $4000 and above Describe: Typical price with PC $4000 to $6000; single user workstation $10,000; DEC ALPHA PC $8000; MAC $4500.
Turnkey system (hardware & software) cost: $ Varies Describe:

Support/Updates

Training assistance available: ■ Courses □ Training Videos □ Tutorials
Comments: 2500 pages written material: reference guide, documentaion, application notes

Software support available: ■ Worldwide □ Not Available □ Other:
List supporting agencies and their phone numbers: Via fax or phone; also via 24 international reps and U.S. resellers.
Cost of support: ■ Included in License

Maintenance contract available for turnkey system? □ Yes ■ No

Software updates

Frequency: ☐ Annual ☐ Semi-annual ■ Other: Quarterly

Cost of updates: ☐ Included in Software License ■ $800 PC; $1500 Workstations

Documentation/Interface

System documentation available as: ☐ Hardcopy ■ Electronic Files

Number of pages: 1400 Number of Volumes: 9 Languages available: Russian, German, English

On-Line help: ☐ Basic ■ Context Sensitive ☐ Hyper-Text ☐ Not Available

User Interface: ☐ Command Line ☐ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes ☐ No

User Base

Total number of installations: 48 nations, including North America, South America, Africa, Asia, Europe,and Australia (As of July 31, 1993)

Year of first installation: 1986

Technical/Functional

Maximum number of users supported: Depends on license

Input devices supported: List most common devices/formats/interfaces/etc.

■ Digitizers: All currently sold

■ Scanners: Howtek, Epson, Microtek, Umax, Ricoh, Nikon, Contex, Laser-Scan, Houston Inst., and others

■ Frame Grabbers: True Vision Vista, Targa, Targa+ (Pal, Secam, NTSC)

■ Tape: 8 MM AND 9 TRACK, DAT, QIC

■ Diskette: 3 1/2 AND 5 1/4, Erasible Optical

■ CD-ROM: Yes, including software issue

■ Others (e.g. GP): GPS, VIDEO DISKS, Others

Output devices supported: List most common devices/formats/interfaces/etc.

■ Display: Any color with Microsfot Windows 3.1 driver with 8, 16, 24 bit color. Ditto above for X-Window System Server

■ Plotters: All with HPGL or Postscript Protocol

■ Film Recorders: Several types (7 brands)

■ Printers: MOST COLOR PRINTS (75 MODELS)

■ Tape: 8 MM EXABYTE, OPEN REEL

■ Diskette: 3 1/2 AND 5 1/4, ERASIBLE OPTICAL

Exchange file formats supported: More than any other product on market; too many to list for Rasters, Vectors, CAD and Databases.

System Linkages:

- ■ Integrated DBMS: Relational
- ■ External DBMS supported: DBase, RBase, INFO, FOXBASE
- ■ Macro language available for customizing/extending system $ No additional cost
- ■ Linkable libraries for data structure access $300 PC, $500 WS □ FORTRAN ■ C
  □ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- ■ Topological Structuring
- ■ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 50
- ■ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Other Significant Functional Areas: Too many more to list - integrated, interactive IPS, GIS, CAD, AM/FM, Spatial Database Management.

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- ■ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ■ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Technical Features:

- ■ Object oriented architecture

PRODUCT NAME: TOPOLOGIC

Company/Organization

Name:	Geometria	Contact:	Peter Kiss
Address:	GIS Systems House	Person(s):	
	Felsó Zöldmáli út 128-130	Phone:	36 1 250 0989
	H-1025 Budapest, Hungary	Fax:	36 1 250 1231

Product Information

Product Name: TopoLogic

Type of Product: ■ GIS □ Image Processing □ AM/FM □ CAD □ Other:

If GIS: ■ Vector or □ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: IBM, DEC, HP, Silicon Graphics, SCO, SUN

Graphics Environments Supported: ■ X-Windows ■ Motif ■ Open Look □ Sunview ■ Microsoft Windows

Minimum Hardware/System Configuration: 16 MB memory (8 on MS Windows), 1024 by 768 256 color graphics, 10 MB free disk space.

Turnkey system available? □ Yes ■ No (Bundled Hardware & Software)

Licensing/Pricing

■ Commercial Product

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: ~$4000

Complete (fully capable) software system cost: ~$12,000

Other pricing information: University discount available

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: □ Worldwide ■ Not Available

Software updates

Frequency: □ Annual ■ Semi-annual

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: ~1000 pages Number of volumes: 6 Languages available: English

On-Line help: □ Basic □ Context Sensitive ■ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen □ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 30 (As of July 31, 1993)

Number of installations by continent:

Europe: 30

Year of first installation: 1988

Technical/Functional

Maximum number of users supported: 32

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Calcomp, Summagraphics, Aristogrid, Numonics, Textronix
- □ Scanners:
- □ Frame Grabbers:
- ■ Tape: Any tape supported by the operating systems
- ■ Diskette: Any tape diskette by the operating systems
- □ CD-ROM:

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Displays: Any displays supported by the operating systems
- ■ Plotters: PCL, HP-GL, HP-GL/2, PostScript compatibles
- □ Film Recorders:
- ■ Printers: PCL, HP-GL, HP-GL/2, PostScript compatibles
- ■ Tape: Any tape supported by the operating systems
- ■ Diskette: Any tape supported by the operating systems
- ■ Others:

Exchange file formats supported: ARC/INFO gernate, DXF, SICAD, EDDS, DoGrid, GAS

System Linkages:

- ■ Integrated DBMS: Xbase
- ■ External DBMS supported: Oracle, Ingres
- ■ Macro language available for customizing/extending system $ Included in base price
- ■ Linkable libraries for data structure access $8000 □ FORTRAN ■ C □ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- □ Topological Structuring
- □ Network Flow Analysis
- □ Cell-based (Raster) Modeling
- □ Map Composition/Generation
- ■ Map Display & Query
- ■ Map Projection Changes; No. Supported: 8
- □ Datum Changes; Datums Supported:
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- ■ Buffer generation

Technical Features:

- ■ Spatial index supported (e.g., quadtree);
- ■ Expert system capability; Describe: Integrated LISP interpreter with full access to internal data structures

PRODUCT NAME: VI²STA

Company/Organization

Name:	International Imaging Systems	Contact:	William Bryant
Address:	1500 Buckeye Drive	Person(s):	Jacques Huyghe
	Milpitas, CA 95035 USA	Phone:	408 432 3400
		Fax:	408 433 0965
		E-Mail:	bryant@i2S.com

Product Information

Product Name: VI²STA (Software)

Type of Product: ■ GIS ■ Image Processing □ AM/FM □ CAD

If GIS: □ Vector or ■ Raster Based

Operating Systems Supported: ■ UNIX □ PC-DOS □ PC-OS/2 □ VAX-VMS □ Macintosh

If UNIX, list vendors: SUN, HP, SGI, DEC

Graphics Environments Supported: ■ X-Windows ■ Motif □ Open Look □ Sunview □ Microsoft Windows

Minimum Hardware/System Configuration: 32 MB main memory, 80 MB swap space, 100 MB disk space, 8 or 24 bit frame buffer.

Turnkey system available? ■ Yes □ No (Bundled Hardware & Software)

If yes, describe: We can integrate a system with GIS & IP peripherals such as scanners, plotters, film recorders, digitizers, etc. We will also supply special software for specific requirements.

Licensing/Pricing

■ Commercial Product

Licensed by: □ User ■ System ■ Site

License fee is: ■ One Time Charge □ Recurrent every

Basic (minimal) software system cost: $7K Describe: VI²STA is a remote sensing/GIS application software package. The minimum module will do image exploitation, enhancement, and display in an X environment.

Complete (fully capable) software system cost: $25K Describe: Includes over 250 image processing commands, the advanced filter package with FFT analysis, the raster GIS module, and a tape ingest module which supports over 40 satellite and airborne sensor formats.

Turnkey system (hardware & software) cost: Have done systems as low as 30K or as high as 3 million.

Support/Updates

Training assistance available: ■ Courses □ Training Videos ■ Tutorials

Software support available: ■ Worldwide □ Not Available

List supporting agencies and their phone numbers: I²S: 408 432 3400

Cost of support: ■ Included in License for one year ■ 20% of list per year

Maintenance contract available for turnkey system? ■ Yes □ No

List maintenance agencies and their phone numbers: I²S: 408 432 3400

Cost of maintenance contract: Negotiated per year

Software updates

Frequency: ■ Annual □ Semi-annual □ Other:

Cost of updates: ■ Included in Software License for first year □ $

Documentation/Interface

System documentation available as: ■ Hardcopy ■ Electronic Files

Number of pages: 1200 Number of Volumes: 10 Languages available: English

On-Line help: □ Basic □ Context Sensitive ■ Hyper-Text □ Not Available

User Interface: □ Command Line □ Windows (Some Graphics)

■ Full Graphical User Interface

■ Single Screen ■ Dual Screen

Batch capability: ■ Yes □ No

User Base

Total number of installations: 61 (As of July 31, 1993)

Number of installations by continent:

North America: 30 Africa: 3 Asia: 15 Europe: 10 Australia: 3

Year of first installation: 1993

Technical/Functional

Maximum number of users supported: Unlimited

Input devices supported: List most common devices/formats/interfaces/etc.

- ■ Digitizers: Eikonix, Perkin Elmer, any can be integrated
- ■ Scanners: Eikonix, Vexcel, any can be integrated
- ■ Frame Grabbers: Any with X windows support
- ■ Tape: UNIX file system devices
- ■ Diskette: UNIX file system devices
- ■ CD-ROM: UNIX file system devices

Output devices supported: List most common devices/formats/interfaces/etc.

- ■ Display: Any X Windows
- ■ Plotters: HP, Tektronix, IRIS, Raster Graphics, any integrated
- ■ Film Recorders: Kodak Tektronix, any integrated
- ■ Printers: We output TIFF and Postscript
- ■ Tape: Any UNIX devices
- ■ Diskette: Any UNIX devices

Exchange file formats supported: TIFF, Postscript, BIL, BIP, BSQ, I²S, most satellite formats

System Linkages:

- ■ Integrated DBMS: Ingress
- ■ External DBMS supported: Any SQL support DB
- ■ Macro language available for customizing/extending system $5000
- ■ Linkable libraries for data structure access $5000 ■ FORTRAN ■ C □ Other

GIS Functionality:

- ■ Map Digitizing
- ■ Digital Map Editing
- □ Topological Structuring
- □ Network Flow Analysis
- ■ Cell-based (Raster) Modeling
- ■ Map Composition/Generation
- □ Map Display & Query
- ■ Map Projection Changes; No. Supported: 24
- ■ Datum Changes; Datums Supported: C data type
- ■ Vector Overlay Analysis
- ■ Surface Modeling
- □ Buffer generation

Image Processing Functionality:

- ■ Interactive Display
- ■ Geometric Rectification
- ■ Image Mosaicing
- ■ Radiometric Corrections
- ■ Multi-Spectral Classification
- ■ Radar Geocoding & Analysis
- ■ Image Enhancement
- ■ Spatial Filtering
- ■ Fourier Analysis
- ■ Multivariate Analysis/Statistical Analysis
- ■ Raster-GIS Modeling
- ■ Hardcopy Map Composition/Annotation

Technical Features:

■ Spatial index supported (e.g., quadtree); Describe: We carry user coordinate system (UCS) information with all images and graphics with UTM being the most common. An object may have more than 1 UCS.

■ Object oriented architecture; Describe: Our display capability includes a virtual room pipeline which carries image tiles or bricks (objects) through user defined processes to the screen.

Other Significant Technical Features: Raster to vector and vector to raster conversion.