GERMANY

AD-A204 054

DTIC
SELECTED
OCT 2 6 1988
D

FOCUS

ON

SCIENTIFIC AND

TECHNICAL

INFORMATION

GMD

Volume 4, No. 1, April 1988

88 10 26 001

Contents

Keywords: West Germany, foreign technology, federal budgets, Research Management. (SDW)

R&D PROGRAMS FUNDING
AND NEW PROGRAM INITIATIVES

Basic Research

The **Government Report on Research** (1988) was presented by Research and Technology Minister Heinz Riesenhuber in Bonn. He pointed out, that research is a preventive measure in fields such as health, climate, and environment with the goal of developing model solutions for practical applications. In the so called key technologies, primarily telecommunication and modern biology, government funding has reached its limit, according to Riesenhuber, and increases similar to those in the past cannot be expected.

The amount of **basic research** funded by the **Federal Ministry for Research and Technology** has since 1987 continuously increased from 29% to 38% in 1988 and is now DM 2.8 billion.

Of a total of DM 59 billion spent for research and development in the Federal Republic, 20% or DM 12 billion were spent in 1987 for basic research. This means that West Germany is ahead in funding for basic research compared to the United States or Japan by about 7 to 8 percent as a share of total R&D expenses. More than a quarter of the DM 12 billion, DM 3.53 billion, is contributed by the Federal Government.

The Federal Republic of Germany spends 2.9% of its GDP for research and development, whereas industry has contributed to research and development by funding almost 62% of the total expenses (1981: 56%).

*****

Information Technology 2000

FOSTI previously reported about a new study, called Information Technology 2000, initiated by the **Federal Ministry for Research and Technology** (FOSTI No. 2, July 1987). On the

occasion of the CeBIT exhibition in Hanover, West Germany (March 16 - 23, 1988), the ministry explained the intention of the study. In the first stage, four working groups had been established focusing on **microelectronics, information processing, industrial electronics, communication technology, and consumer electronics.** Reports on the findings were published in 1987. On the basis of those reports the second stage is dealing with the design of a strategic concept for the future. All ministries of the Federal Government will work together to come up with a vision dealing with information technology and its impact on education, employment, law, ecology, and defense. It is expected that in summer 1988 the findings will be made available to the public. An open discussion shall then provide input on how to promote the attractiveness of West Germany as a market place and how to achieve a broad application of information technology.

*****

Computer Integrated Manufacturing

The Federal Ministry for Research and Technology has launched an initiative to promote technology transfer in the area of computer integrated manufacturing (CIM). The initiative is directed toward small and medium size enterprises. Institutes in 12 different locations in the Federal Republic of Germany will cooperate in providing information about the present stage of CIM, organize demonstrations of exemplary CIM applications, and assist in the design of planning concepts for CIM. The ministry is sponsoring this initiative with DM 25 million.

*****

Information Broker Centers

The Ministry for Research and Technology sponsored an experiment in which 135 information broker centers were sponsored and supported for a

3-year period. Of the 135 institutions which took part in this experiment 86 (64%) were part of the commercial sector, 26 (19%) were non-profit organizations and 23 organizations belonged to the public sector of which 14 were university institutes. The objective of the experiment was to intensify the demand for online-searches in electronic databases and also to intensify the use of this information supply particularly by service companies and medium size commercial businesses. So far, the experiment shows that the objectives have been successfully achieved. However it also showed the following problems occured to the organizations, participating in the experiment:

1. It was difficult and time consuming to get telecommunication access to databases through the German Bundespost.

2. It proved difficult to employ and train a staff qualified to perform searches, with sufficient knowledge in a specific field of science and able to communicate with clients.

3. Institutions participating in the experiment were not usually prepared to market their new information service or to acquire orders for searches in databases.

The final results of the experiment should be available in fall 1988.

*****

Optoelectronic Computers

Scientists working within the framework of the DFG (German Research Association) priority program "integrated optics" are engaged in a study of optoelectronic computers - a development which could supplant conventional computer technology whithin the next few decades. Through this research, an increased speed of computation is expected. The technology also has the advantage of compatibility with the optical fiber network used in optical communications technology. The results of

computations could be fed without further processing directly into fiber optic cables. The first stage of development has now been completed according to "Reports of DFG". Preliminary, still very simple, integrated optoelectronic circuits, containing only a few elements, have been built. However, optoelectronic computers are still some years away. They are unlikely to supplant the electronic computer completely. For purely physical reasons it will be impossible to miniaturize the optoelectronic circuits to the extent already achieved with the current electronic computers.

*****

System Security Research

The State Government of Baden-Wuerttemberg established at the University of Karlsruhe a research center for system security. The center is planning to develop projects and procedures for privacy and data security for future information and communication systems. The center is also involved in the EUREKA project OASIS (open and secure information systems) and works on privacy and data security together with other universities and industry.

*****

Export Information Service

Starting in 1988 the Foreign Trade Promotion Office in Germany, in conjunction with the National Association of Chambers of Commerce is offering a new kind of service to firms interested in exports. The service supplies up-to-date information to foreign companies wishing contacts with potential German business partners, advises German firms on Requests for Proposal abroad and provides early information on foreign projects, especially those financed by the German or international development agencies.

The Trade Promotion Office will gather and coordinate information from various governmental offices and agencies, store it in one of its central computers and on a daily basis, compare that data with the interest profiles of the firms using the new service. The Chamber Association and the Trade Promotion Office call the cooperative effort an essential step toward intensifying the export information available to German companies.

*****

Electronic Signature System

Funded by the Federal Government and in cooperation with a software company (MBP), GMD has developed a system called "TeleTrust" by which letters can be sent electronically in connection with a signature which cannot be falsified. The system works with a credit card type plastic card with an inbedded computerchip. The signature is provided by inserting the plastic card in a reader and additionally inputting an ID-number. After the input of the signature the document cannot be changed electronically. "TeleTrust" also can encode a text, so that only the authorized recepient can read it. The reader for the signature system will cost between DM 1,400 and DM 2,500, depending on the model.

*****

INFORMATION TECHNOLOGY - INDUSTRIAL OUTLOOK FOR GERMANY

German Database Vendors

There are more than 3,100 online databases on the market worldwide offered by more than 480 online vendors in 22 countries. But only 250 databases have a considerable market share in West Germany and are offered by 29 German vendors and 20 foreign companies. The following list shows the German vendors with the number of databases offered:

Vendor	No. of databases offered
Inka	52
DIMDI	50
FIZ Technik	42
EDICLINE	24
Genios	17
Btx Sued	17
GID	11
STN Intern.	10
Hoechst Abt. EA	9
GBI	5
IDC	5
Bertelsmann	5
IBM - In	5
VWD	5
DBI	4
FWV	2
FV Berlin/ZEDAT	2
DITR	2
Stat. Bundesamt	2
DATEV	2
JURIS	1
ECODATA	1
SRZ	1
ODAV	1
DPA	1
BFI	1
TELEPRINT	1
Hoechst Arzneimittel	1
Total	**279**

The most important foreign hosts who offer databases on the German market are DIALOG, CHASE ECONOMETRICS, DRI EUROPE, BRS, CISI-WHARTON, I. P. Sharp, Data-Star, ORBIT-SDC, ESA-IRS, and Telesystemes Questel.

*****

3

Databases on CD-ROM

Several publishers in West Germany have come up with at least prototypes of databases on CD-ROM. Lasec, Berlin, is offering in cooperation with Springer Verlag, FULL SEARCH, consisting of a database on dangerous goods. The German Patent Office in Munich, in cooperation with Scientific Consulting Dr. Schulte-Hillen, Cologne, is offering a database on patent documentation and Hoppenstaedt, Darmstadt, publishes its handbook on large and medium size enterprises on CD-ROM. Verlag Saur, another publisher, also well known in the United States, is offering International Books in Print, Publishers International Directory with ISBN index on CD-ROM and Bertelsmann Software AG offers a database called Book System. Lange & Springer, Berlin, has become a distributor of U.S. products on the West German market (e.g. AGRICOLA, ERIC, PsycLit).

*****

Information and Communications Industries

At the opening in Hanover of CeBIT, the world's largest fair for office equipment, information and telecommunication systems, the chairman of the industry's trade association, Werner Poschenrieder, noted an upswing in the West German information and communications industries and predicted a 5 % increase in sales. He also argued that the cost structures of firms headquartered in the Federal Republic of Germany strained their profit picture. Poschenrieder observed that the number of people employed in the electronics industry rose to 219,000 in 1987 with production increasing by 0.6% to DM 31.6 billion, while production in communication rose 2.1% to DM 14.9 billion. Exports amounted to DM 16.7 billion with 75 % of this volume going to the rest of Europe, whereas its imports came to DM 16.6 billion.

*****

According to Diebold Germany, the Federal Republic is Europe's fastest growing market for data communication, which is estimated at about DM 1.3 billion (1986), at DM 1.4 billion in 1987 and at DM 2.5 billion in 1990. An annual growth rate of 11% is expected.

*****

Market for Software and Hardware

According to Diebold Germany, the market for software in the Federal Republic of Germany amounts to DM 19 billion in 1987 and will experience a 20% growth rate, stabilizing at DM 28 billion in 1992. According to an estimate from another source the software market will be DM 16.5 billion in 1987 of which 31.5% will be standard software, 20.5% services and 30% maintenance and 18% tailored software.

The domestic production volume of hardware in Germany is estimated at DM 14.6 billion in 1987 and developing to about DM 30 billion in 1992, employing about 225,000 workers.

The leading manufacturers of hardware in Germany are for large-scale computers (over 500 TDM) IBM with 50%, Siemens with 25% and Unisys with 9%. Leading manufacturers for medium size computers (100 - 500 TDM) are Nixdorf 21% and IBM with 14%.

Small computers (25 - 100 TDM) are dominated in Germany by Olivetti 23%, Kienzle 12% and Philips 12%. The major manufacturers for PCs and homecomputers (up to 25 TDM) are shared by Commodore 21%, IBM 18%, Apple 10%, Olivetti 6%, Triumph Adler 6%, and Siemens 4%.

*****

New Technologies, Distribution, Qualification, and Working Conditions

According to a study of the Federal Ministry for Research and Technology on the topic of "New Technologies, Distribution, Qualification, and Working Conditions", the percentage of those workers who are actively involved with computers has increased from 1979 to 1985 by 21%. For the banking and insurance industry this percentage amounts to 60% and for the government sector 25%. The study, carried out in 1986 and based on a sample of 26,500 workers, also shows that about 49% of the workers had been informed about computer applications in advance but only 32% did actually participate in the planning process.

*****

Expert Systems

In the United States there are about 4,000 expert systems installed, but only 150 in the Federal Republic. The Berlin software company Brainware reports that by the end of 1987, 4,290 expert system computers (1986: 3,620) were available worldwide of which 400 were Lisp computers, 450 Unix computers, 3,300 PC implementations, and 140 large-scale computers.

*****

TELECOMMUNICATION ISSUES

New Structure for the German Bundespost

A governmental commission on telecommunication recommended in the fall of 1987, a new structure for the German Bundespost. According to the commission, the German Bundespost should be separated into entities for postal and telecommunication business. A group of university professors has rejected these recommendations and have argued against privatization. They fear that if the recommendations will be implemented, a large number of jobs will be lost and the population will receive a much lower quality of services. The report instead suggests a restructuring of the Bundespost as a modern state owned service organization.

*****

In the meantime the Minister of Post and Telecommunications presented the cabinet in Bonn the draft of a bill to reorganize the Federal Post Office. Under the proposed law, the Bundespost would operate more according to market principles, letting private firms compete in the telecommunications field while retaining the post office monopoly in telephone services. The present ministry would be split into 3 government corporations with its own executive and supervisory boards and a common coordinating directorate with a Minister of Post and Telecommunications exercising legal supervision.

*****

German Research Network Expanding

The German Research Network (DFN) (FOSTI Nr. 3/4, 1987) is expanding. The network now connects 300 computers and provides access to a network of 2,000 computers, of which 600 are located in Europe and 200 in the Federal Republic. The network is presently funded by the Federal Ministry for Research and Technology but will later be self supported through user fees. The network has a center in Bonn, which is managed by GMD, providing a gateway to the German EARN Network and transmitting 5 billion characters per month which corresponds to about 200 meters of typed pages. 20% of the data exchange is carried out with foreign countries. DFN expects a growth rate of 80% annually. The network operates through 2 international gateways via Montpellier (France) which provides access to the USA (Bitnet), to Japan, Canada, Mexico, and Australia. A second gateway has been established via Geneva and connects to Great Britain, Austria, Norway, and other countries.

*****

INFORMATION TECHNOLOGY FOR EDUCATION AND RESEARCH

Informatics at German Schools

The GI Society for Informatics emphasizes that German schools have a current shortage of 35,000 informatics teachers, indicating that presently there are only 100 full time informatics teachers and 8,000 are teaching informatics on a part-time basis.

*****

Computer Capacity at German Universities

A Computer Commission of the Deutsche Forschungsgemeinschaft (DFG) has come up with an analysis and recommendations dealing with the computer capacity at German universities for a period from 1988 to 1991. The commission estimates that investments of DM 413 million per year are required in order to provide the necessary computer capacity at the German universities. Only 1 terminal or PC is presently available for 100 students (compared to the United States 1 to 8 and Great Britain 1 to 12). As another reason for the insufficient computer capacity at the German universities, the high telecommunication cost of the German Bundespost was cited, which are 3-times as expensive as in the U.S.

Most of the universities rely on a central computer center but lack a systematic installation of computer capacity in each sector of teaching and research. It is recommended that university research centers should be equipped with workstations, connected to the local university computer and also to the supercomputers at regional computer centers.

One of the authors, Professor Dr. Segmueller, formerly chairman of the Board of the Leibniz Computer Center of the Bavarian Academy of Sciences was recently appointed chairman of the Executive Board of the GMD.

*****

NEWS FROM GERMAN ONLINE VENDORS

FIZ Karlsruhe has established an "Academic Program" for the access to their databases. Students can now access FIZ databases at a reduced price during the hours between 5 pm and 8 am. FIZ followed a policy, which has been established by major online-services in the United States.

*****

The **Online Information Center for Chemistry,** Berlin, is offering 13 online databases through STN International or INKA Karlsruhe. Besides offering Chemical Abstracts Service files for the German market, the center also offers a number of databases produced by the German **Kunststoffinstitut** (Institute for Plastic Materials), the **Gmelin-Institute for Anorganic Chemistry** and from the **Information Center for Materials**. The latest price-list for obtaining access to these databases and a description of the databases and other services of this information center in Germany can be obtained through the **GMD Washington D.C.** office. If necessary, the GMD Washington D.C. office will be assisting in interpreting or translating the information and how to get in touch with the Information Center for Chemistry in Germany.

*****

The **FIZ Technik** databases have been offered through **DataStar** since May 1986 (Switzerland). This cooperation provides the following important advantages for the user:

1. All FIZ Technik databases and all DataStar databases can be accessed equally with DSO (DataStar online retrieval language). This permits access to approximately 200 databases in which research can be conducted with a uniform language.

2. The technical information packages of DataStar and FIZ Technik compliment each other, and are part of the most attractive European database packages.

3. Users who have both a FIZ Technik and a DataStar user ID can change the host without having to set up a new access link via the national and international data networks.

FIZ Technik currently offers over 40 databases which provide information for the German industry and for both research and teaching in the technical sector.

*****

The database vendor GENIOS Wirtschaftsdaten-banken (Handelsblatt GmbH) is now offering a set of legal databases in cooperation with JURIS, the German Online Center for legal databases. GENIOS users can now search in JURIS databases using the same type of retrieval language. They can access information on law related literature, court decisions, and administrative rules and procedures for the Federal Republic of Germany.

*****

REWARDS FOR OUTSTANDING
ACHIEVEMENTS IN INFORMATION
AND TECHNOLOGY

Technology Transfer Award

The Federal Ministry of Education and Science in Bonn recently announced that it has created an award for outstanding achievements in technology transfer from universities to the business sector. The award, called the Technology Transfer Award, comes with DM 50,000 in prize money and will honor outstanding individual accomplishments as well as exemplary results of ongoing cooperation between the academic and businesses. Scholars from university level institutions as well as the institutions themselves will be elegible for the price, which can be shared between several winners.

*****

Konrad Zuse Medal

On the occasion of the Second International GI Congress on Knowledge Based Systems at the Systems '87 in October in Munich, the "Konrad Zuse Medal" was awarded to Professor Heinz Billing. At the Max-Planck-Institute for Physics (Goettingen) he invented in the 1940s one of the first computers named G1 and G2 (one of the first electronic and programmable computers) based on magnetic drum storage technology. For a couple of years this storage technology, invented by Heinz Billing, was the most economical storage for electronic computers worldwide. Until 1956 the 2 prototype computers G1 and G2 were the only computers available in Germany for scientific applications. Konrad Zuse (78), after which the award has been named, was the inventor of the first programmable computer of the world, called Z 3, which was introduced in 1941.

The developmental work of Heinz Billing, who also developed G3, a computer on the magnetic storage basis, was made possible in the mid 50s by the American Marshall-Fund.

*****

A GLANCE AT SELECTED
GMD RESEARCH RESULTS

The GMD Research Center for innovative computer systems and technology has developed POPE, a PROLOG computer with parallel processing capability for artificial intelligence applications. The system is considered as a first step for the development of parallel processable PROLOG implementations and for the design of a PROLOG high performance computer.

In cooperation with AEG, Ulm, GMD has also created a userfriendly tool set for the design of analog integrated circuits. This research has been neglected in the past in contrast to the design of digital circuits. The system called CVSAN is inter-

active and adjusts flexible to the various stages of design. A final version will be available by early next year on an APOLLO computer.

GMD also developed an operating system with multi-user and multi-tasking capabilities for the Intel 80386 processor. A major advantage of the new operating system is that PC users with application programs under MS-DOS can continue to use them. The system "L3" is marketed by ERGOS, Ergonomic Office Software, Siegburg, a spin-off company of former GMD employees.

*****

INTERNATIONAL COOPERATION

European Community

The European Community plans to spend DM 2.5 billion annually until 1991. This is in addition to the national expenditures for Research and Technology of the 12 EC countries which amounts to DM 76 billion (1987). The focus of the EC R&D policy is placed on harmonizing the infrastructure, achieving a more balanced research potential in the various EC countries, improving the exchange of scientists, and the coordination of national and EC research funding.

EUREKA, a European initiative and framework for multilateral research initiatives within the EC and research programs like ESPRIT (Information technology) (FOSTI, Nr. 3/4, Dec. 1987) have become important milestones for an intensified European Research and Technology Cooperation.

*****

Automatic Translation System

In cooperation with the University of Texas, Siemens developed an automatic translation system called METAL which allows an easy updating of dictionaries on the basis of a new dictionary

structure which requires only a collection of 10,000 words. Technically a symbolics LISP machine is connected with several Siemens PCs (PC-NX2). In the first stage this new system will be designed only for German-English.

The European Community is also working on a different automated translation sytem, called EUROTRA.

*****

Software Development for Optical Data Storage

The Bertelsmann AG, Guetersloh, and IBM Germany are soon to sign an agreement in the area of software development for optical data storage. The agreement is not yet final, but both companies have applied for approval by the German Anti-Trust Office.

*****

Patent Information

In January the European Patent Office (EPA), the U.S. Patent and Trademark Office (PTO), and the Japan Patent Office (JPO) agreed in Munich, West Germany, to harmonize the procedures for patent applications, storage and issuance of patents. The patent offices still need 36 to 42 months (EPA), 34 (JPO) and 20 month (PTO) to process patent applications. After completion of the automation projects processing time at all three offices will be considerably reduced from 1989 onward.

#####

Would you like to know more about ....

LIBRARY OF KIEL INSTITUTE OF WORLD ECONOMICS
- Central National Library of Economics in the Federal Republic of Germany -

Adress:
Duesternbrooker Weg 120
Postfach 4309
2300 Kiel 1
Federal Republic of Germany

Tel: (01149) 431-884-383
Telex: 292 479 weltw d

Financed by the Federal and eleven State Governments by special agreement.the Library is the National Library of Economics for the Federal Republic of Germany, and the Library of economics research institute.

Stock (31.12.1986)

1,693,582 bibliographical units
including: 740,345 monographs

593,172	annuals
268,892	journals
6,162	newspapers
5,011	wall maps

Current periodicals

12,214	annuals
5,569	journals
65	newspapers

Database
Econis (Economics Information System)
File size 36,574 records

Budget (1986) : DM 1,342,000
Staff: 91 posts, 19 externally financed

Collections
These include economic literature in the field of political and international economics in all languages, and from countries all over the world. Special emphasis is placed on non conventional literature (at present 65 % of accessions). The Library is particularly interested in the reports and statistical information of international organizations (the UN, OECD, EEC, COMECON etc.), economics associations and chambers, public authorities and banks, trade unions and political parties, and the publications of economic research institutes.

Catalogs

There is an internal system containing 8,5 million catalog cards, which is expanding annually by approximately 250,000 cards.

- subject catalog
containing 6,035 subjet headings and approximately 8,000 cross-references

- regional catalog
literature concerning regions of the world, countries, districts, and other geographical classifications

- catalog of persons
literature boty by and concerning individuals, in separate sections

- catalog of corporations
literature published by and about public authorities, arranged alphabetically

- catalog of administrative authorities
literature published by and concerning institutions, arranged alphabetically

- title catalog
anonymous literature and periodical titles, arranged alphabetically

- shelf list of periodical holdings
annuals, periodicals, and newpapers arranged according to classification number

Consultation of the subject and regional catalogs is possible on a subject, regional, and temporal basis.

Use
Solely as a lending library; inter-library loans; connection to the Periodicals Data Bank of the DBI in Berlin.

Library Services
Bibliographies
- "Bibliographie der Wirtschaftswissenschaften"
(Bibliography of Economics). A listing of a selection of the Library's accessions since 1968. Until 1977 these amounted to 10,000 annually, and thereafter two volumes a year, each containing 10,000 titles.

- "Kieler Schrifttumskunden zu Wirtschaft und Gesellschaft"
In this series specific thematic bibliographies and dictionaries will be published.

Information Department
(information retrieval)
The information department provides a catalog searching service based on written enquiries, and issues copies of the relevant catalog cards.

Selective Dissemination of Information

A selection of current Library accessions are organized according to the following criteria:
- new publications on specific subjects
- new publications on specific regions
- the cataloging of articles from specific periodicals based on individual requirements

Archives

The archives contain 10 millions newspaper articles (1986), which date back to 1920, and are available for consultation by external users.

Electronic data processing

The introduction of data processing techniques beginning with the catalog department started on 1st January 1986. The data base is named ECONIS (Economics Information System).

*****

CONFERENCES IN GERMANY

July			
19 - 21	ASE '88 - International Conference on "Applications of Supercomputers in Engineering"	Aachen	Comput. Mech. Institute Conference Secretary Mrs. Newman 52 Henstead Rd. Southampton S01 2DD - UK

August			
01 - 05	ECAI '88 - European Conf. on "Artificial Intelligence"	Munich	Techn. Universitaet Muenchen (ECAI '88) Inst. fuer Informatik Prof. Dr. Radig Postfach 202420 8000 Munich 2

Sept.			
13 - 15	FMS-7 - 7th International Conf. on "Flexible Manufacturing Systems"	Stuttgart	FMS-7 The Conference Director 35 - 39 High Street Kempston, Bedford MK42 7BT UK
20 - 23	CAMP '88 - Congress on "Computer Graphics, Applications for Management and Productivity"	Berlin	Ausst.-Messe-Kongr.- GmbH (AMK) Postfach 191740 Messedamm 22 D-1000 Berlin 19
25 - 29	Conference on "Expert Systems and Decision Support in Medicine"	Hannover	Med. Hochschule Hannover, Inst. f. Med. Informatik Postfach 610180 3000 Hannover
26 - 29	11th International CODATA Conf. on "Scientific and Technical Data in a New Era"	Karlsruhe	DECHEMA CODATA Conference Postfach 970146 6000 Frankfurt 97
27 - 30	2nd International Workshop on "Object Oriented Database Systems"	Ebernburg	Universitaet Karlsruhe Forschungs Zentrum Informatik Dr. K. Dittrich Haid-und-Neu-Str. 10 - 14 7500 Karlsruhe

#####

GMD Working Papers

No. 252 Guesgen, H.W.; Hertzberg, J.:
A Funktional View on Constraints
June 1987 (22 pages)

No. 254 Baumgarten, B.:
On Internal and External Characterizations of PT-Net Building Block Behaviour
June 1987 (29 pages)

No. 255 Pawlak, A.:
Lecture Notes on Hardware Description Languages - Introduction
July 1987 (52 pages)

No. 258 Bittel, O. et al:
Tool Use. Spezification of the Kernel DEVA Support Environment
July 1987 (151 pages)

No. 259 Joppich, W.:
A Multigrid Method for Solving the Nonlinear Diffusion Equation on a Time-dependent Domain Using Rectangular Grids in Cartesion Coordinate
July 1987 (18 pages)

No. 260 Cazin J. et al:
DEVA: Current Specifications and Experiments
Juli 1987 (95 pages)

No. 261 Diederich, J.:
Toward an Open-Systems Connectionism
July 1987 (27 pages)

No. 264 Solchenbach, K. et al:
Parallel Multigrid Methods: Implementation on local memory multiprocessors and applications to fluid dynamics
July 1987 (12 pages)

No. 266 Cassirer, Klaere; Joppich, Wolfgang:
PLTMG - 4.0, Installation and Use on the IBM 3090 Computer
August 1987 (26 pages)

No. 267 Noe J.D. et al:
The Commit/Abort Problem in Type Specific Locking
September 1987 (20 pages)

No. 270 Paass, G.:
Probabilistic Logic
October 1987 (31 pages)

No. 271 Gordon, Thomas F.:
OBLOG (Version 2), Reference Manual
October 1987 (39 pages)

No. 272 Fernandez, C.; Merceron, A.:
Bases and Lattices in Non-Sequential Processes
October 1987 (27 pages)

Any of the listed Publications may be ordered from: