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COMPUTERS IN INFORMATION SCIENCES: COMPUTER COMPONENTS.(U)
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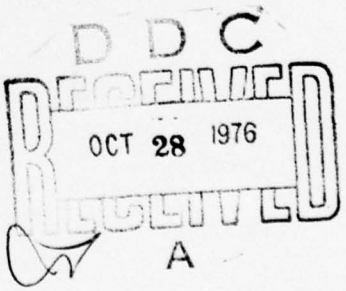
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Updates AD-761 970.
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*Bibliographies	Data Processing
*Computers	Data Transmission Systems
*Information Sciences	Data Storage Systems
Analog Computers	Memory Devices
Digital Computers	Computer Logic

(See reverse)

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

This bibliography is a compilation of citations on Computers In Information Sciences; Computer Components. Discussed are computer memory devices, data storage systems, arithmetic and logic units, and punched card equipment. Corporate Author-Monitoring Agency, Subject, Title and Personal Author are included.

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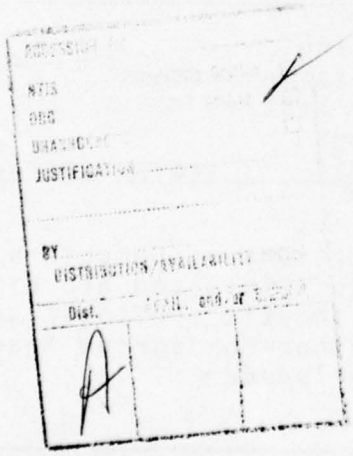
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Item 19 KEY WORDS (Cont'd)

Computer Graphics
Input Output Devices
Arithmetic Units
Central Processing Units
Data Processing Terminals
Computer Communications
Data Processing Equipment



F O R E W O R D

This bibliography contains 265 unclassified and unlimited citations on *Computers In Information Sciences: Computer Components*.

Citations were taken from entries processed into the Defense Documentation Center's data bank during the period of June 1972 to July 1976.

This report updates DDC report bibliography on *Computers In Information Sciences: Computer Components*, AD-761 970, DDC-TAS-73-25, dated June 1973.

Individual entries are arranged in AD number sequence under the heading AD Bibliographic References. Computer generated indexes of Corporate Author-Monitoring Agency, Subject, Title and Personal Author are provided.

BY ORDER OF THE DIRECTOR, DEFENSE SUPPLY AGENCY

OFFICIAL

Hubert E. Sauter

HUBERT E. SAUTER
Administrator
Defense Documentation Center

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DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 736 895 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

A PARALLEL ARITHMETIC UNIT, (U)

NOV 72 8P AVAEV,A. V. ;VIZUN,I. D. ;GOLOVINA,M. A. ;LAUT,V. N. ;SOKOLOV,A. A. ;
REPT. NO. FTD-HT-23-406-71

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PATENT (USSR) 242 498 P 1-13 1969, BY J. MILLER.

DESCRIPTORS: (*DIGITAL COMPUTERS, *PATENTS), LOGIC CIRCUITS, SHIFT REGISTERS, USSR (U)
IDENTIFIERS: *ARITHMETIC AND LOGIC UNITS, TRANSLATIONS (U)

A PARALLEL ARITHMETIC UNIT FOR DIGITAL COMPUTERS IS FITTED WITH TWO PAIRS OF REGISTERS, EACH DIVIDED INTO A DIGIT SUM REGISTER AND A DIGIT TRANSFER REGISTER. EACH REGISTER HAS ON ITS INPUT AN AND GATE WHICH LIES IN A FEEDBACK CIRCUIT TO INPUT ELEMENTS OF THE REGISTER IN THE OTHER PAIR, AN AND GATE TO CARRY OUT THE LOGIC OPERATIONS, AND A THREE INPUT ADDER. THE CLEAR SIGNALS ARE PASSED TO EACH AND GATE AND ADDER THROUGH CONTROL WIRES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 747 134 9/2 14/3
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

A SURVEY AND ANALYSIS OF HIGH DENSITY MASS STORAGE DEVICES AND SYSTEMS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 72 47P SCHNEIDEWIND,NORMAN F. ;
SYMS,GORDON H. ;GRAINGER,THOMAS L. ;CARDEN,
ROBERT J. ;
REPT. NO. NPS-55SS72071A
PROJ: FMSO-PO-2-2099

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA STORAGE SYSTEMS, MILITARY REQUIREMENTS), (*MEMORY DEVICES, REVIEWS), MAGNETIC TAPE, MAGNETIC RECORDING SYSTEMS, VIDEO SIGNALS, OPTICAL EQUIPMENT, PHOTOGRAPHIC RECORDING SYSTEMS, STEREOPHOTOGRAPHY, INFORMATION RETRIEVAL, ELECTRON BEAMS, RELIABILITY, PROTECTION, CORRECTIONS (U)
IDENTIFIERS: OPTICAL STORAGE DEVICES, PHOTOSCOPIC STORAGE, HOLOGRAPHIC INFORMATION STORAGE, VIDEO TAPES, COMPUTER STORAGE MANAGEMENT (U)

A SURVEY AND ANALYSIS HAS BEEN MADE OF HIGH DENSITY MASS STORAGE SYSTEMS FOR THE NAVY FLEET MATERIAL SUPPORT OFFICE. THE PURPOSE OF THE PROJECT WAS TO SURVEY MASS STORAGE DEVICES AND SYSTEMS AND TO SELECT SEVERAL DEVICES FOR DETAILED ANALYSIS. REPRESENTATIVE DEVICES WERE ANALYZED IN ORDER TO DETERMINE THEIR SUITABILITY FOR VARIOUS FILE MANAGEMENT FUNCTIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 747 508 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

DIGITAL COMPUTERS AND SYSTEMS. ARTICLE 8. PRINCIPLES OF MECHANISM AND STRUCTURAL ORGANIZATION OF THE COMPUTER STORAGE. (U)

JUN 72 28P SINELNIKOV,E. M. ; GOLUBINTSEV,V. O. ;KUPAEV,V. M. ;
REPT. NO. FTD-MT-24-1959-71

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENII. ELEKTROMEKHANIKA (USSR) NII P1263-1271 1970, BY W. W. KENNEDY.

DESCRIPTORS: (*DATA STORAGE SYSTEMS, DESIGN), (*MEMORY DEVICES, DIGITAL COMPUTERS), (*COMPUTER PROGRAMMING, MULTIPLE OPERATION), CORE STORAGE, MAGNETIC CORES, MAGNETIC TAPE, THIN FILM STORAGE DEVICES, SHIFT REGISTERS, USSR (U)
IDENTIFIERS: MAGNETIC DRUMS, MAGNETIC DISKS, MULTIPROGRAMMING, BUFFER STORAGE, SEMICONDUCTOR COMPUTER STORAGE, TRANSLATIONS (U)

THE ARTICLE DISCUSSES THE BASIC IDEAS AND PRINCIPLES OF MULTILEVEL ORGANIZATION OF MEMORY AND METHODS OF ITS DYNAMIC DISTRIBUTION AMONG SEVERAL PROGRAMS IN THE MULTIPROGRAM WORK OF A DIGITAL ELECTRONIC COMPUTER. THESE IDEAS FOUND THEIR FIRST APPLICATION IN SECOND GENERATION COMPUTERS AND ATTAINED A DETERMINING INFLUENCE UPON THE EQUIPMENT PART AND THE OPERATIONAL PART OF A DIGITAL ELECTRONIC COMPUTER IN THIRD GENERATION COMPUTERS. A SHORT DESCRIPTION IS GIVEN OF STORES OF VARIOUS LEVELS: EXTERNAL STORES, HIGH SPEED STORES, BUFFER STORES, SUPERHIGH SPEED STORES. CONSIDERATION IS GIVEN TO QUESTIONS OF MEMORY PROTECTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 748 226 9/2
APPLIED DATA RESEARCH INC WAKEFIELD MASS

COMPILER DESIGN FOR THE ILLIAC IV. VOLUME II. (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. NO. 5, 14 JAN-13 JUL 72,
JUL 72 222P MILLSTEIN,ROBERT E. ;
REPT. NO. CADD-7208-1411-VOL-2
CONTRACT: DAHC04-70-C-0023, ARPA ORDER-1554
MONITOR: AROD 9187.6-A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMPILERS, DESIGN), (*COMPUTER PROGRAMMING, INSTRUCTION MANUALS), DIGITAL COMPUTERS, CONTROL SEQUENCES, SUBROUTINES (U)
IDENTIFIERS: PROGRAMMING MANUALS, FORTRAN, ILLIAC, *ILLIAC 4 COMPUTER, COMPUTER STORAGE MANAGEMENT (U)

THE DOCUMENT DESCRIBES THE FORTRAN TRANSCRIBES USED IN CONJUNCTION WITH THE PARALYZER ON THE ILLIAC 4 COMPUTER. AFTER THE PARALYZER HAS MADE ITS TRANSFORMATIONS ON THE ORIGINAL FORTRAN PROGRAM, THE TRANSCRIBER CAN OUTPUT THE NEWLY CREATED PROGRAM IN STANDARD FORTRAN SOURCE FORMAT. THE OUTPUT FILE CAN THEN BE EDITED AND FED BACK TO THE FORTRAN COMPILER. STORAGE ALLOCATOR ROUTINES ARE DESCRIBED ALONG WITH FLOW ANALYSIS ROUTINES AND THE MACRO EXPANDER AND OPTIMIZER PHASES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 748 242 9/5
GENERAL ELECTRIC CO PITTSFIELD MASS ORDNANCE SYSTEMS

ELECTRICAL CHARACTERIZATION OF COMPLEX MICROCIRCUITS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. MAR 71-MAR 72, JUN 72 306P CITRIN,DAVID A. ;
CONTRACT: F30602-71-C-0188
MONITOR: RADC TR-72-145

UNCLASSIFIED REPORT

DESCRIPTORS: (*INTEGRATED CIRCUITS, RELIABILITY(ELECTRONICS)), TEST METHODS, LOGIC CIRCUITS, STANDARDS, AMPLIFIERS, COMPARATORS, MEMORY DEVICES (U)
IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS, MEDIUM SCALE INTEGRATED CIRCUITS, OPERATIONAL AMPLIFIERS, RADIATION HARDENING, SEMICONDUCTOR COMPUTER STORAGE (U)

SECTION 3000 OF MIL-STD-883 WAS REVIEWED AND REWRITTEN. NEW OR MODIFIED SLASH SHEETS TO MIL-M-38510 WERE PREPARED FOR DTL AND T2L-SSI LOGIC CIRCUITS. 741 OPERATIONAL AMPLIFIER, 710/711/LM106 DIFFERENTIAL COMPARATOR, AND THE 723 REGULATOR. THE RESULTS OF THE VENDOR COMPARISON, TEST CIRCUITS, AND PROPOSED SLASH SHEETS ARE INCLUDED. TEST PROFILES WERE PREPARED FOR A BROAD RANGE OF BIPOLAR AND MOS SEMICONDUCTOR MEMORIES. ROM'S PROM'S, AND STATIC AND DYNAMIC RAM'S WERE CONSIDERED. THE TEST PROFILES COVER STATIC AND DYNAMIC FUNCTIONAL TEST REQUIREMENTS. MSI/LSI TEST CONSIDERATIONS WERE BASED UPON THE DEVELOPMENT OF A MINIMUM SET OF LOGIC TESTS, BASED UPON A STUCK-AT-ONE, STUCK-AT-ZERO PHILOSOPHY IN ORDER TO PROVIDE A RAPID AND ACCURATE FUNCTIONAL TEST OF COMPLEX DEVICES. THIS TESTING CRITERIA TERMED 'LOGIC INTEGRITY TESTS' IS DESCRIBED AND IS PROPOSED FOR INCLUSION IN MIL-STD-883. TEST VECTORS BASED UPON THE LOGIC INTEGRITY TEST FOR THE 2 AND 4 BIT FULL ADDERS, 4 X 2 MULTIPLIER AND THE 9341/54181 ARITHMETIC LOGIC UNIT ARE INCLUDED IN THIS REPORT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 748 592 9/2
NAVAL RESEARCH LAB WASHINGTON D C

SIGNAL PROCESSING ELEMENT USERS' REFERENCE MANUAL. (U)

DESCRIPTIVE NOTE: INTERIM REPT.
SEP 72 39P
REPT. NO. NRL-7488
PROJ: NRL-B02-06, NRL-B02-10

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, INSTRUCTION MANUALS), RADAR SIGNALS, SONAR SIGNALS, COMMUNICATION SYSTEMS, DIGITAL COMPUTERS, DATA STORAGE SYSTEMS, INPUT OUTPUT DEVICES (U)
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, CENTRAL PROCESSING UNITS, *SIGNAL PROCESSING (U)

THE NRL SIGNAL PROCESSING ELEMENT (SPE) IS A HIGH-PERFORMANCE SIGNAL PROCESSING FACILITY FOR RADAR, SONAR, AND COMMUNICATION SYSTEMS. IT IS INTENDED TO BE COMPATIBLE WITH THE NAVY ALL APPLICATIONS DIGITAL COMPUTER (AADC). THE SPE CONSISTS OF FOUR MAJOR SUBSYSTEMS: A MICROPROGRAMMED CONTROL UNIT (MCU), A BUFFER STORE AND STORAGE CONTROL UNIT (SCU), A SIGNAL PROCESSING ARITHMETIC UNIT (SPAU), AND INPUT (I/O) UNITS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 748 996 9/2
NAVAL RESEARCH LAB WASHINGTON D C

SIGNAL PROCESSING ELEMENT FUNCTIONAL DESCRIPTION. PART 1. MICROPROGRAMMED CONTROL UNIT, BUFFER STORE, AND STORAGE CONTROL UNIT. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
SEP 72 40P IHNAT,JOHN P. ;SMITH, WILLIAM R. ;ROBERTS,JOHN D. , JR.;WU,Y. S. ;WALD,BRUCE ;
REPT. NO. NRL-7490
PROJ: NRL-B02-06, NRL-B02-10

UNCLASSIFIED REPORT

DESCRIPTORS: (*DIGITAL COMPUTERS, MEMORY DEVICES), INPUT OUTPUT DEVICES, DATA PROCESSING, INTERFACES, COMMUNICATION SYSTEMS, RADAR EQUIPMENT, SONAR EQUIPME(U)
IDENTIFIERS: MICROPROGRAMMING, ARITHMETIC AND LOGIC UNITS, SIGNAL PROCESSING, COMPUTERS (U)

THE NRL SIGNAL PROCESSING ELEMENT (SPE) IS BEING DEVELOPED TO PROVIDE A HIGH-PERFORMANCE SIGNAL PROCESSING FACILITY FOR RADAR, SONAR, AND COMMUNICATION SYSTEMS. IT IS INTENDED TO BE COMPATIBLE WITH THE NAVY'S ALL APPLICATIONS DIGITAL COMPUTER (AADC). THE SPE CONSISTS OF FOUR MAJOR SUBSYSTEMS: A MICROPROGRAMMED CONTROL UNIT (MCU), A BUFFER STORE AND STORAGE CONTROL UNIT (SCU), A SIGNAL PROCESSING ARITHMETIC UNIT (SPAU), AND INPUT/OUTPUT (I/O) UNITS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 749 267 9/2
NORTH AMERICAN ROCKWELL CORP ANAHEIM CALIF ELECTRONICS GROUP

SINGLE CRYSTAL CYLINDRICAL MAGNETIC DOMAIN MATERIALS FOR MEMORY APPLICATIONS. (U)

DESCRIPTIVE NOTE: SEMIANNUAL TECHNICAL REPT. 1 OCT 71-30 MAY 72,
SEP 72 61P HEINZ,D. M. ;ELKINS,P. E. ;GEORGE,P. K. ;HUFFMAN,B. J. ;
REPT. NO. C70-1144.26/501
CONTRACT: DAAB07-70-C-0258
PROJ: DA-1-H-062101-A-327
TASK: 1-H-062101-A-32701
MONITOR: ECOM 0258-3

UNCLASSIFIED REPORT

DESCRIPTORS: (*THIN FILM STORAGE DEVICES, GARNET), (*DATA STORAGE SYSTEMS, FEASIBILITY STUDIES), SINGLE CRYSTALS, EPITAXIAL GROWTH, YTTRIUM COMPOUNDS, GALLIUM COMPOUNDS, FERRATES (U)
IDENTIFIERS: YTTRIUM IRON GARNETS, MAGNETIC DOMAINS, MAGNETIC FILMS, *MAGNETIC BUBBLE DOMAINS, THIN FILMS (U)

THE GOAL OF THIS PROGRAM IS TO DEMONSTRATE THE FEASIBILITY OF A BUFFER MEMORY USING THE CONTROLLED PROPAGATION OF CYLINDRICAL MAGNETIC (OR BUBBLE) DOMAINS. THE BUBBLE DOMAIN MATERIAL INVESTIGATION, DIRECTED TOWARD PREPARING SINGLE CRYSTAL LAYERS WHICH EXHIBIT USEFUL DEVICE PROPERTIES IS BEING PURSUED WITH HETEROEPITAXIAL FILMS OF GALLIUM-SUBSTITUTED YTTRIUM IRON GARNET OR RELATED GARNET COMPOSITIONS. THE BUBBLE DOMAIN DEVICE INVESTIGATION IS DIRECTED TOWARD DEVELOPING BUBBLE MANIPULATION TECHNIQUES SUITABLE FOR IMPLEMENTING THE MEMORY. THE BODY OF THE REPORT CONTAINS SECTIONS ON MATERIAL AND DEVICE WORK. THE MATERIAL SECTION IS CHIEFLY CONCERNED WITH CZOCHRALSKI-GROWN RARE EARTH GARNET CRYSTALS USED AS SUBSTRATES FOR BUBBLE DOMAIN FILMS. THIS DISCUSSION COVERS OBSERVED IMPERFECTIONS IN CRYSTALS, THE EFFECT SUBSTRATE IMPERFECTIONS HAVE ON BUBBLE DOMAIN BEHAVIOR IN EPITAXIAL FILMS AND CRYSTAL GROWTH PARAMETERS WHICH INFLUENCE THE FORMATION OF THESE IMPERFECTIONS. THE DEVICE SECTIONS OF THIS REPORT PRESENT ADVANCES IN BUBBLE DOMAIN DEVICE PHYSICS AND HARDWARE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 749 732 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

EXPANSION OF ADDRESSING MEANS OF THE M-220 COMPUTER, (U)

JUL 72 20P ZHILCHENKOV,V. D. ;MARKOV, A. S. ;MATVEEV,V. D. ;SOKOLOV,S. N. ;
REPT. NO. FTD-HT-23-0011-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. FROM INSTITUT FIZIKI VYSOKIKH ENERGII, SERPUKHOV. REPORT (USSR) P1-17 1969, BY W. W. KENNEDY.

DESCRIPTORS: (*COMPUTER PROGRAMMING, *DATA STORAGE SYSTEMS), MEMORY DEVICES, DIGITAL COMPUTERS, USSR (U)
IDENTIFIERS: REGISTERS(COMPUTERS), TRANSLATIONS (U)

A 15-BIT BASE REGISTER AND A 9-BIT COMPLEMENTARY REGISTER ARE ADDED AS ADDITIONAL MEANS OF ADDRESSING TO THE M-220 COMPUTER. THE ADDRESS REGISTER IS ENLARGED. THESE MEANS PROVIDE A STRAIGHTFORWARD ADDRESSING WITHIN A 32 K CORE MEMORY I.E. ALLOW TO MAKE A CONTINUOUS INDEXING OF 32 K ARRAYS AND TO TRANSMIT BY A SINGLE PSEUDO-INSTRUCTION INFORMATION FILES OF UP TO 32 K WORDS BETWEEN INTERNAL AND EXTERNAL MEMORY UNITS. THE PAPER DESCRIBES BOTH MATHEMATICAL AND ELECTRONICAL MODIFICATIONS OF THE COMPUTER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 749 759 9/2 14/3
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE AUTOMATIC FORMATION OF A CONSTANT CHECK SUM WITH ACCESS TO THE MINSK-22 COMPUTER MAGNETIC-TAPE STORAGE, (U)

AUG 72 9P GONCHAROV,V. A. ;PETROV,V. I. ;
REPT. NO. FTD-MT-24-49-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MEKHANIZATSIYA I AVTOMATIZATSIYA UPRAVLENIYA (USSR) N4 P38-39 1970, BY HENRY PECK.

DESCRIPTORS: (*DATA STORAGE SYSTEMS, MAGNETIC TAPE), (*MAGNETIC TAPE, MONITORS), CORE STORAGE, MAGNETIC CORES, QUALITY CONTROL, USSR (U)
IDENTIFIERS: MINSK 22 COMPUTERS, TRANSLATIONS (U)

ONE OF THE METHODS OF MONITORING THE AUTHENTICITY OF DATA IN A MAGNETIC-TAPE FILE IS CYCLICALLY SUMMING UP WORDS WITH A COMPLEMENT NOTATION UP TO THE CHECK SUM -77...77 BY THE LAST WORD IN THE FILE. ON THE MINSK-22 COMPUTER THESE OPERATIONS ARE EXECUTED EITHER BEFORE THE FILE IS NOTED ONTO THE TAPE BY CYCLIC SUMMATION AND BY THE COMPLEMENT FORMATION INTO FCMS OR AFTER THE NOTATION OF THE FILE BY THE COMPLEMENT FORMATION FROM THE CHECK SUM STORED IN THE SUMMATOR WITH REPEATED ACCESS TO THE ACCUMULATOR FOR THE COMPLEMENT NOTATION. BOTH IN THIS CASE AND IN THE OTHER CASE SUBSTANTIAL MACHINE TIME IS LOST. THE REPORT DESCRIBES A CIRCUIT WHICH PERMITS AVOIDING THESE TIME LOSSES AND ASSURES THE AUTOMATIC FORMATION AND NOTATION OF THE COMPLEMENT UP TO THE CHECK SUM -77...77 BY THE LAST WORD OF THE FILE DURING THE NOTATION OF DATA ONTO MAGNETIC TAPE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 750 435 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

PERMANENT STORAGE OF THE 'DNEPR-2' COMPUTER SYSTEM, (U)

AUG 72 11P SELIGEI,A. M. ;
TROSTYANETSKII,D. S. ;
REPT. NO. FTD-MT-24-177-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MEKHANIZATSIYA I AVTOMATIZATSIYA UPREVLENIYA (USSR) N3 P31-32 1970, BY HENRY PECK.

DESCRIPTORS: (*MEMORY DEVICES, DESIGN), DATA STORAGE SYSTEMS, DIGITAL COMPUTERS, USSR (U)
IDENTIFIERS: READ ONLY STORAGE, TRANSLATIONS (U)

AN INDEPENDENT PERMANENT STORAGE OF THE TRANSFORMER TYPE OF THE DNEPR-2 COMPUTER SYSTEM IS DESCRIBED WHICH COLLECTS OCTAL DATA AND OUTPUTS IT IN BINARY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 750 512 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE ORGANIZATION OF THE PARALLEL OPERATION OF PERIPHERAL EQUIPMENT USING AN ASSOCIATIVE STORAGE. (U)

AUG 72 14P LEVINSKII,L. S. ;
REPT. NO. FTD-HT-23-1135-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF NAUCHNO-TEKHNICHESKAYA INFORMATSIYA. SERIYA I: ORGANIZATSIYA I METODIKA INFORMATSIONNOI RABOTY (USSR) N7 P30-32 1971. BY HENRY PECK.

DESCRIPTORS: (*MEMORY DEVICES, INPUT OUTPUT DEVICES), LOGIC CIRCUITS, PERFORMANCE(ENGINEERING), USSR (U)
IDENTIFIERS: ASSOCIATIVE STORAGE, TRANSLATIONS (U)

A PAGE ORGANIZED BUFFER MEMORY IS USED FOR A SIMULTANEOUS FUNCTIONING OF MANY INPUT OUTPUT UNITS CONNECTED TO A CENTRAL COMPUTER SYSTEM. THE MAIN FEATURES ARE GIVEN ON THE STORAGE DEVICE WITH A BUILT IN LOGIC FUNCTIONING AS THE DISPATCHING UNIT IN OPERATIONS WITH PAGES, AS DEVELOPED AT VINITI. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 750 605 9/2
ARMY MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT CENTER
FORT BELVOIR VA

SOURCE TEXT EDITOR FOR THE VARIAN DATA 620. (U)

DESCRIPTIVE NOTE: RESEARCH REPT. JUL 71-JAN 72,
AUG 72 75P GOSS,MELVIN L. ;
REPT. NO. USAMERDC-2033
PROJ: DA-1-T-662705-A-012
TASK: 1-T-662705-A-01204

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMS, INSTRUCTION MANUALS), MAGNETIC TAPE, CORRECTIONS (U)
IDENTIFIERS: PUNCHED TAPE, ASSEMBLY LANGUAGES, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, *EDITING ROUTINES (U)

A SOURCE TEXT EDITOR PROGRAM FOR APPLICATION ON THE VARIAN DATA 620 IN THE COMPUTER-AIDED DESIGN AND ENGINEERING FACILITY WAS DEVELOPED TO PROVIDE THE USER WITH A CONVENIENT METHOD FOR GENERATION OF A SOURCE PAPER TAPE FOR INPUT TO AN ASSEMBLER OR FORTRAN IV COMPILER; CORRECTION AND MODIFICATION OF SOURCES TEXT TAPES THROUGH KEYBOARD CONTROL FROM THE TELETYPEWRITER OR EQUIVALENT CRT TERMINAL DEVICE AND THE HIGH-SPEED PAPER TAPE SYSTEM; LISTING SOURCES TEXT TELETYPEWRITER PRINTER; READING AND WRITING SOURCE TEXT DATA TO LINETAPE MAGNETIC TAPE FILES; MANIPULATION OF DATA IN SMALL DATA BASE FILES WITH SUCH POSSIBLE APPLICATIONS AS SYSTEM FILES DIRECTORIES, MAINTENANCE ASSISTANCE AND GENERAL TEACHING AID FOR THE COMPUTER-AIDED DESIGN AND ENGINEERING FACILITY; AND PREPARATION OF SOURCE DATA FILE FOR INPUT TO DAS ASSEMBLER. THE SOURCE TEXT EDITOR USES THE LINETAPE MAGNETIC TAPE SYSTEM MANUFACTURED BY COMPUTER OPERATIONS, INC., AS DATA FILES. SPECIAL LOADER AND UTILITY SUBROUTINES, IN ADDITION TO THE SOURCE TEXT EDITOR, WERE PROVIDED WITH ASSEMBLY LANGUAGE PROGRAM LISTINGS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 750 665 9/2
NAVAL RESEARCH LAB WASHINGTON D C

SIGNAL PROCESSING ELEMENT FUNCTIONAL DESCRIPTION. PART 2 (PRELIMINARY). SIGNAL PROCESSING ARITHMETIC UNIT. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
OCT 72 54P SMITH,WILLIAM R. ;SMITH, HAROLD H. ;
REPT. NO. NRL-MR-2522
PROJ: NRL-B02-06, XF21-241-015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO PART 1, AD-748 996.

DESCRIPTORS: (*DIGITAL COMPUTERS, LOGIC CIRCUITS), INPUT OUTPUT DEVICES, DATA PROCESSING, INTERFACES, COMMUNICATION SYSTEMS, RADAR EQUIPMENT, SONAR EQUIPME(U)
IDENTIFIERS: MICROPROGRAMMING, *ARITHMETIC AND LOGIC UNITS, SIGNAL PROCESSING, COMPUTERS (U)

THE NRL SIGNAL PROCESSING ELEMENT (SPE) IS BEING DEVELOPED TO PROVIDE A HIGH-PERFORMANCE SIGNAL PROCESSING FACILITY FOR RADAR, SONAR, AND COMMUNICATION SYSTEMS. IT IS INTENDED TO BE COMPATIBLE WITH THE NAVY'S ALL APPLICATIONS DIGITAL COMPUTER (AADC). THE SPE CONSISTS OF FOUR MAJOR SUBSYSTEMS: A MICROPROGRAMMED CONTROL UNIT (MCU), A BUFFER STORE AND STORAGE CONTROL UNIT (SPU), A SIGNAL PROCESSING ARITHMETIC UNIT (SPAU), AND INPUT/OUTPUT (I/O) UNITS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 751 114 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE FUTURE OF THIN MAGNETIC FILMS, (U)

SEP 72 9P ILYUSHENKO,L. ;
REPT. NO. FTD-HT-23-1403-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PROMYSHLENNOST BELOROSSI (USSR) N9 P75-76 1970, BY CHARLES T. OSTERTAG.

DESCRIPTORS: (*THIN FILM STORAGE DEVICES, REVIEWS), MANUFACTURING, MAGNETIC PROPERTIES, IRON ALLOYS, NICKEL ALLOYS, COBALT ALLOYS, MICROELECTRONICS, USSR (U)
IDENTIFIERS: *MAGNETIC FILMS, THIN FILMS, TRANSLATIONS (U)

THE REPORT CONTAINS A DISCUSSION OF MAGNETIC FILM USED IN MEMORY DEVICES IN ELECTRONIC COMPUTERS. MAGNETIC FILM IS A STRONG RIVAL OF SEMICONDUCTOR MEMORY DEVICES; CONSEQUENTLY, THE STUDY OF THE CHARACTERISTICS OF MAGNETIC FILM AND THE SEARCH FOR NEW MATERIALS FOR THEIR MANUFACTURE ARE IMPORTANT. RESEARCH IS BEING CONDUCTED ON FILMS OF DOUBLE AND TRIPLE ALLOYS BASED ON IRON, NICKEL, AND COBALT COMBINED WITH CHROMIUM, MANGANESE, COPPER MOLYBDENUM, SULPHUR, AND PHOSPHORUS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 753 403 9/2
MICHIGAN UNIV ANN ARBOR SYSTEMS ENGINEERING LAB

A CLASS OF OPERATIONS SUITABLE FOR
FRACTIONAL-SIZE ASSOCIATIVE MEMORIES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 72 60P JOHNSON,DONALD W. ;
REPT. NO. SEL-TR-61, 010749-5-T
CONTRACT: DAAB07-72-C-0058
PROJ: PRON-C8-2-08501-01-C8-CA
MONITOR: ECOM 0058-61

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY DEVICES,
PERFORMANCE(ENGINEERING)), COST EFFECTIVENESS, TIME
STUDIES, EFFICIENCY, COMPUTER PROGRAMMING (U)
IDENTIFIERS: *ASSOCIATIVE STORAGE (U)

ASSOCIATIVE MEMORIES HAVE EXTREMELY USEFUL
CAPABILITIES, BUT THE MEMORIES ARE EXTREMELY
EXPENSIVE. ONE WAY OF CIRCUMVENTING THE HIGH
HARDWARE COST IS TO USE AN ASSOCIATIVE MEMORY WHICH
IS SMALLER THAN THE DATA BASE, AND PROCESS THE DATA
BY PAGES. BY USING A SMALLER MEMORY THE HARDWARE
COSTS ARE THUS REDUCED. SOME OPERATIONS CAN BE
PERFORMED QUITE EFFICIENTLY ON AN ASSOCIATIVE MEMORY
SMALLER THAN THE DATA BASE, (FRACTIONAL-SIZE
ASSOCIATIVE MEMORY) WHILE OTHERS CANNOT. IN
THIS REPORT A CLASS OF OPERATIONS WHICH ARE PERFORMED
EFFICIENTLY ON A FRACTIONAL-SIZE ASSOCIATIVE
MEMORY IS DEFINED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 753 944 17/2 20/5 9/4
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

PROBLEMS OF LASER BEAM DATA TRANSMISSION, PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV, SEPTEMBER 1968, (U)

NOV 72 491P DERYUGIN,I. A. ;
REPT. NO. FSTC-HT-23-2015-72
PROJ: FSTC-T7023012301

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF MONO. PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIEM, KIEV, 1968 P3-712.

DESCRIPTORS: (*OPTICAL COMMUNICATIONS, SYMPOSIA), (*DATA TRANSMISSION SYSTEMS, LASERS), (*COHERENT RADIATION, INFORMATION THEORY), DATA PROCESSING, QUANTUM THEORY, STEREOPHOTOGRAPHY, OPTICAL SCANNING, MEMORY DEVICES, SIGNAL-TO-NOISE RATIO, PHOTONS, COUNTING METHODS, ATMOSPHERE MODELS, USSR (U)
IDENTIFIERS: OPTICAL STORAGE DEVICES, SIGNAL PROCESSING, HOLOGRAPHIC INFORMATION STORAGE, HOLOGRAPHY, INFORMATION SYSTEMS, TRANSLATIONS (U)

THE DOCUMENT CONTAINS PAPERS PRESENTED AT THE FIRST CONFERENCE ON THE PROBLEMS OF LASER BEAM DATA TRANSMISSION. THE VOLUME OF RESEARCH IS DEVOTED TO THE CONSTRUCTION OF LASER INFORMATION SYSTEMS. HOWEVER, UP TO THIS TIME THERE HAVE BEEN NO EFFICIENTLY ACTIVE LASER INFORMATION SYSTEMS. THE PRIMARY CAUSE HOLDING BACK THE DEVELOPMENT OF EFFICIENT LASER INFORMATION SYSTEMS IS THE LOW LEVEL OF RESEARCH IN THE FIELD OF PRECISION PHYSICAL-CHEMICAL TECHNOLOGY OF SUBSTANCES WITH SMALL LIGHT LOSSES AND PARAMETERS WHICH ARE EFFICIENTLY CONTROLLABLE BY MEANS OF ELECTRIC, MAGNETIC AND ACOUSTIC FIELDS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 754 365 9/2
CALIFORNIA UNIV LOS ANGELES

THE PAGE FAULT FREQUENCY REPLACEMENT ALGORITHM. (U)

72 13P CHU,WESLEY W. ;OPDERBECK, HOLGER ;

CONTRACT: N00014-69-A-0200-4027
PROJ: NR-048-129

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN AFIPS - CONFERENCE PROCEEDINGS, V41 P597-609 1972.

DESCRIPTORS: (*COMPUTER PROGRAMMING, DATA STORAGE SYSTEMS), MULTIPLE OPERATION, REAL TIME, TIME SHARING, ALGORITHMS (U)
IDENTIFIERS: COMPUTER STORAGE MANAGEMENT (U)

DYNAMIC MEMORY MANAGEMENT IS AN IMPORTANT ADVANCE IN MEMORY ALLOCATION ESPECIALLY IN VIRTUAL MEMORY AND MULTIPROGRAMMING SYSTEMS. IN THE PAPER THE AUTHORS CONSIDER THE CASE OF PAGED MEMORY SYSTEMS: THAT IS, THE PHYSICAL AND LOGICAL ADDRESS SPACE OF THESE SYSTEMS IS PARTITIONED INTO EQUAL SIZE BLOCKS OF CONTIGUOUS ADDRESSES. A NEW TYPE OF REPLACEMENT ALGORITHM BASED ON PAGE FAULT FREQUENCY (PFF) IS DEVELOPED. THIS PFF REPLACEMENT ALGORITHM ALLOCATES MEMORY ACCORDING TO THE DYNAMICALLY CHANGING MEMORY REQUIREMENTS OF EACH PROCESS. IT DOES NOT REQUIRE PRIOR KNOWLEDGE OF PROGRAM BEHAVIOR AND CAN BE APPLIED TO PROGRAMS OF DIFFERENT TYPES AND SIZES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 754 680 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

REALIZATION OF COMBINATION ADDERS FOR A SIMULTANEOUS ADDITION OF SEVERAL TERMS, (U)

JAN 73 19P BELYAVSKII,V. L. ;KAKURIN, N. YA. ;VASILENKO,YU. A. ;
REPT. NO. FTD-HT-23-1709-72
PROJ: FTD-T71-05-09, FTD-T71-05-13

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PRIBORY I SISTEMY AVTOMATIKI (USSR) N12 P120-127 1969, BY VICTOR MESENZEFF.

DESCRIPTORS: (*LOGIC CIRCUITS, COMPUTER LOGIC), DIGITAL COMPUTERS, TRANSFER FUNCTIONS, USSR (U)
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, TRANSLATIONS (U)

THE REPORT DISCUSSES COMBINATION SUM CIRCUITS THAT OPERATE IN A COMPUTER SYSTEM DIFFERENT FROM A BINARY SYSTEM. THE ENUMERATED TYPES OF SUM CIRCUITS HAVE CERTAIN DISADVANTAGES OVER ORDINARY N BIT PARALLEL SUM CIRCUITS IN THE TIME OF EXECUTING TRACKING OPERATIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 754 933 9/2 1/3 14/3
MITRE CORP BEDFORD MASS

COMPARISON OF REQUEST HANDLING CAPABILITY OF SOME AIRBORNE DRUM MEMORIES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 72 42P SUTHERLAND,NORMAN B. ;
REPT. NO. MTR-2434
CONTRACT: F19628-71-C-0002
PROJ: AF-6700
MONITOR: ESD TR-72-327

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY DEVICES, PERFORMANCE(ENGINEERING)), AIRBORNE, DATA PROCESSING (U)
IDENTIFIERS: MAGNETIC DRUMS, AVIONICS (U)

A METHOD IS DESCRIBED FOR DEVELOPING A CONSISTENT FRAMEWORK FOR COMPARING THE REQUEST HANDLING CAPABILITIES OF VARIOUS DRUM MEMORIES. THE METHOD PERMITS ONE TO ESTIMATE THE REQUEST CAPACITY OF A DRUM, GIVEN ITS PHYSICAL CHARACTERISTICS TOGETHER WITH A NUMBER OF ASSUMPTIONS REGARDING SUCH FACTORS AS DATA ORGANIZATION, BLOCKING AVERAGE QUANTITY OF DATA TRANSFERRED PER REQUEST, AND EFFECTIVE LATENCY TIME. THE METHOD DEVELOPED IS USED TO COMPARE THE CAPABILITY OF SEVERAL EXISTING OR PROPOSED AIRBORNE DRUMS. THE EFFECT OF A NUMBER OF POSSIBLE MODIFICATIONS TO A PARTICULAR DRUM (E.G., INCREASE DENSITY, INCREASED ROTATIONAL SPEED, REDUCTION OF NUMBER OF OVERHEAD BITS) IS ALSO EXAMINED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 755 395 9/2
BOSTON COLL CHESTNUT HILL MASS SPACE DATA ANALYSIS LAB

GRAPPAC: A PACKAGE OF FORTRAN SUBROUTINES FOR USE WITH THE 6000 SERIES 274 INTERACTIVE GRAPHICS SYSTEM OF THE CONTROL DATA CORPORATION, (U)

SEP 72 63P VICKSELL,FRONA B. ;
REPT. NO. SCIENTIFIC-2
CONTRACT: F19628-70-C-0120
MONITOR: AFCRL 72-0698

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMMING, GRAPHICS), COMPUTER PROGRAMS, CONTROL SEQUENCES, DISPLAY SYSTEMS, MEMORY DEVICES, ERRORS (U)
IDENTIFIERS: FORTRAN, *COMPUTERS, *GRAPHICS, *INTERACTIONS, COMPUTERS, GRAPHICS (U)

GRAPPAC, A PACKAGE OF FORTRAN SUBROUTINES FACILITATING USE OF THE 6000 SERIES 274 INTERACTIVE GRAPHICS SYSTEM OF THE CONTROL DATA CORPORATION, IS DESCRIBED AND PROGRAMMING EXAMPLES ARE GIVEN. GRAPPAC MANAGES AN OUTPUT BUFFER FOR INTERACTIVE GRAPHICS SYSTEM DISPLAY CREATION. IT ALSO KEEPS A RECORD OF THE DISPLAYS CREATED, IN LOGICAL GROUPINGS OF ARBITRARY SIZE DETERMINED BY THE PROGRAMMER; THE PROGRAMMER CAN LATER CALL FOR ERASURE OF ANY GROUP. CALLING SEQUENCES ARE SHORT AND SIMPLE. COORDINATE TRANSFORMATIONS ARE AUTOMATIC. THERE ARE LINEAR AND LOGARITHMIC AXIS ROUTINES AND GRID LINE GENERATORS. ALPHANUMERIC INPUT FROM THE CONSOLE IS FACILITATED, WITH FORMAT ERRORS MADE NON-FATAL. ERROR TRACEBACKS ARE PROVIDED. IN ADDITION, LOW LEVEL CALCOMP PLOTTING ROUTINES HAVE BEEN SIMULATED SO THAT HIGHER LEVEL CALCOMP ROUTINES CAN BE USED WITHIN THE INTERACTIVE GRAPHICS SYSTEM FRAMEWORK. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 755 491 9/2
MICHIGAN UNIV ANN ARBOR PERFORMANCE MODELING GROUP

RANDOM PARTIALLY PRE-LOADED PAGE REPLACEMENT ALGORITHMS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 72 36P GELENBE,SAMI E. ;
REPT. NO. PMG-72-5
CONTRACT: N00014-67-A-0181-0036
PROJ: NR-049-311

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMMING, REPLACEMENT THEORY), MULTIPLEXING, MEMORY DEVICES, STOCHASTIC PROCESSES, CONTROL SEQUENCES, ALGORITHMS, MATHEMATICAL MODELS, THEOREMS (U)
IDENTIFIERS: *COMPUTER STORAGE MANAGEMENT (U)

THE REPLACEMENT PROBLEM ARISES IN COMPUTER SYSTEM MANAGEMENT WHENEVER THE EXECUTABLE MEMORY SPACE AVAILABLE IS INSUFFICIENT TO CONTAIN ALL DATA AND CODE WHICH MAY BE ACCESSED DURING THE EXECUTION OF AN ENSEMBLE OF PROGRAMS. AN EXAMPLE OF THIS IS THE PAGE REPLACEMENT PROBLEM IN VIRTUAL MEMORY COMPUTERS. THE PROBLEM IS SOLVED BY USING A REPLACEMENT ALGORITHM WHICH SELECTS CODE OR DATA ITEMS WHICH ARE TO BE REMOVED FROM EXECUTABLE MEMORY WHENEVER NEW ITEMS MUST BE BROUGHT IN AN NO MORE FREE STORAGE SPACE REMAINS. AN AUTOMATON THEORETIC MODEL OF REPLACEMENT ALGORITHMS IS INTRODUCED FOR THE CLASS OF 'RANDOM, PARTIALLY PRE-LOADED' REPLACEMENT ALGORITHMS, WHICH CONTAINS CERTAIN ALGORITHMS OF PRACTICAL AND THEORETICAL INTEREST. AN ANALYSIS OF THIS CLASS IS PROVIDED IN ORDER TO EVALUATE THEIR PERFORMANCE, USING THE ASSUMPTION THAT THE REFERENCES TO THE ITEMS TO BE STORED ARE IDENTICALLY DISTRIBUTED INDEPENDENT RANDOM VARIABLES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 755 492 9/2
MICHIGAN UNIV ANN ARBOR PERFORMANCE MODELING GROUP

CORE COMPLEMENT POLICIES FOR MEMORY ALLOCATION AND ANALYSIS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 72 33P KIMBLETON,STEPHEN R. ;
REPT. NO. PMG-72-6
CONTRACT: N00014-67-A-0181-0036
PROJ: NR-049-311

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, PERFORMANCE(ENGINEERING)), (*DATA STORAGE SYSTEMS, OPTIMIZATION), (*COMPUTERS, MATHEMATICAL MODELS), SYSTEMS ENGINEERING, OPERATION, STOCHASTIC PROCESSES, MATHEMATICAL MODELS (U)
IDENTIFIERS: STATISTICAL PROCESSES, PAGED ENVIRONMENT, PERFORMANCE EVALUATION, *COMPUTER STORAGE MANAGEMENT, COMPUTERIZED SIMULATION (U)

A PRIMARY OBJECTIVE IN MODELING COMPUTER SYSTEMS IS THE PREDICTION OF SYSTEM PERFORMANCE AS A FUNCTION OF THE VARIOUS POLICIES WHICH MAY BE USED TO ALLOCATE SYSTEM RESOURCES. THE TWO PRIMARY RESPURCES OF A COMPUTER SYSTEM ARE THE CPU(S) AND THE MEMORY HIERARCHY (MH). CPU ALLOCATION POLICIES HAVE BEEN EXTENSIVELY STUDIED AS HAVE MEMORY MANAGEMENT POLICIES FOR TWO LEVEL VIRTUAL MEMORY SYSTEMS. HOWEVER, ALLOCATION POLICIES FOR A MULTILEVEL MH HAVING THREE OR MORE LEVELS HAVE RECEIVED RELATIVELY LITTLE ATTENTION. IN THIS PAPER A SINGLE STAGE POLICY FOR THE ALLOCATION OF INFORMATION DURING THE LIFETIME OF A PROCESS EXECUTING IN A PAGED ENVIRONMENT IS DEVELOPED. THIS POLICY IS SHOWN TO BE OPTIMAL FOR THE CASE OF A SINGLE PROCESS EXECUTING IN ISOLATION WHOSE REFERENCE STRING CAN BE CHARACTERIZED IN TERMS OF A SEMI-MARKOV PROCESS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 755 502 13/8
EDGEWOOD ARSENAL MD

APPLICATIONS IN COMPUTER-AIDED DESIGN AND NUMERICAL CONTROL MANUFACTURING USING AUTOMATED DRAFTING AND DIGITIZING. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. JUL 71-SEP 72, JAN 73 84P PEARL,VERNON R. ;
REPT. NO. EA-TR-4720
PROJ: PEMA-4931.57.01217

UNCLASSIFIED REPORT

DESCRIPTORS: (*MECHANICAL DRAWING, AUTOMATION), (*MANUFACTURING, MECHANICAL DRAWING), MACHINE TOOLS, DESIGN, DATA PROCESSING, GRAPHICS, PUNCHED TAPE, MACHINE SHOP PRACTICE (U)
IDENTIFIERS: NUMERICAL CONTROLS, COMPUTER AIDED DESIGN, *ENGINEERING DRAWINGS (U)

THE REPORT DISCUSSES AN AUTOMATED DRAFTING AND DIGITIZING SYSTEM FOR ARMY MATERIEL COMMAND (AMC). THIS SYSTEM WAS TO BE TESTED FOR ITS CAPABILITY IN PREPARING CONCEPT, EXPERIMENTAL, PROTOTYPE, AND PRODUCTION DRAWINGS. THE SYSTEM WAS ALSO STUDIED FOR ITS CAPABILITY OF PRODUCING NUMERICAL CONTROL (N/C) TAPES THROUGH A DIGITIZING PROCESS FOR PRODUCTION OF LIMITED QUANTITY SPARE REPAIR PARTS AND (RDTE) PROTOTYPE ITEMS. IN EXPLORING THE EQUIPMENT, THE SYSTEM WAS FOUND TO HAVE AN EXTREMELY HIGH POTENTIAL IN THE MAKING OF DRAWINGS, PRODUCING AND VERIFYING N/C TAPES, PERFORMING ENGINEERING CALCULATIONS, AND MANIPULATING NUMERICAL DATA INTO VARIOUS GRAPHIC FORMS. THE REPORT CONTAINS VARIOUS EXAMPLES AND ILLUSTRATIONS THAT HAVE BEEN PRODUCED BY THE AUTOMATIC DRAFTING AND DIGITIZING SYSTEM. THE ACCOMPLISHMENTS ACHIEVED THROUGH THE USE OF THIS EQUIPMENT HAVE RESULTED IN A SIGNIFICANT COST REDUCTION. IT IS, THEREFORE, CONCLUDED THAT THIS PROJECT HAS BEEN HIGHLY SUCCESSFUL, AND THE PURCHASE OF SUCH EQUIPMENT IS HIGHLY RECOMMEMDED TO OTHER GOVERNMENT AGENCIES TO HELP REDUCE LONG ENGINEERING LEAD TIMES AND ACHIEVE SUBSTANTIAL COST SAVINGS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 756 475 9/2
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER

SEQUENCING STRATEGIES IN PIPELINE COMPUTER SYSTEMS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 72 120P REDDI,SREERANGAPALLE
SRINIVASULU ;RAMAMOORTHY,C. V. ;
REPT. NO. TR-134
CONTRACT: F44620-71-C-0091, NSF-GJ-28452
PROJ: AF-4751
MONITOR: AFOSR TR-72-1952

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, SCHEDULING), MEMORY DEVICES, DIGITAL COMPUTERS, COMPUTER PROGRAMMING, GRAPHICS, MATRICES(MATHEMATICS), MATHEMATICAL MODELS (U)
IDENTIFIERS: PARALLEL PROCESSORS, RESOURCE ALLOCATION, SEQUENCING, GANTT CHARTS, COMPUTERIZED SIMULATION (U)

THE BASIC PRINCIPLES OF OPERATION OF PIPELINING IN COMPUTER SYSTEMS ARE EXAMINED AND A COMPREHENSIVE THEORY OF PIPELINE SYSTEMS IS PRESENTED. A CLASSIFICATION SCHEME FOR THE PIPELINE SYSTEMS IS PROPOSED AND INVESTIGATED. PRESENT PRACTICE OF COMPUTERS, EMPLOYING PIPELINING, IS REVIEWED AND DIRECTIONS FOR FUTURE PRACTICE ARE SUGGESTED. SIMULATION RESULTS ARE GIVEN FOR A SIMPLE PROPOSED PIPELINE SYSTEM, INCORPORATING THE DEVELOPED THEORY. PIPELINE SYSTEMS ARE COMPARED WITH OTHER COMPETING SYSTEMS TO JUDGE THE FUTURE OF THESE SYSTEMS. A PIPELINE COMPUTER SYSTEM IS A PROBLEM DEPENDENT METHOD USING CONCURRENT PROCESSING OF INDEPENDENT TASKS IN A STREAM OF JOBS BY INDEPENDENT FUNCTIONAL UNITS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 756 689 9/2 6/4
MASSACHUSETTS INST OF TECH CAMBRIDGE PROJECT MAC

PROJECT MAC PROGRESS REPORT IX, JULY 1971 TO JULY 1972. (U)

DESCRIPTIVE NOTE: ANNUAL SCIENTIFIC REPT.,
FEB 73 137P FREDKIN,EDWARD ;
CONTRACT: N00014-70-A-0362-0001, DAHC15-69-C-0347

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY CONTRACTS N00014-70-A-0362-0004, N00014-69-A-0276-0002, F30602-72-C-0001 AND GRANT NSF-GJ-00432. SEE ALSO AD-735 148.

DESCRIPTORS: (*COMPUTER PROGRAMMING, REPORTS), (*DATA PROCESSING, REPORTS), (*ARTIFICIAL INTELLIGENCE, REPORTS), COMPILERS, PROGRAMMING LANGUAGES, SYSTEMS ENGINEERING, MATHEMATICAL LOGIC, TIME SHARING, AUTOMATA, EDUCATION, GRAPHICS, MEMORY DEVICES, MULTIPLE OPERATION, MATHEMATICAL MODELS, MAN MACHINE SYSTEMS, NETWORKS, QUEUEING THEORY, COMPUTER LOGIC, REAL TIME (U)
IDENTIFIERS: MAC PROJECT, PARALLEL PROCESSORS, *AUTOMATA, COMPUTATION, PETRI NETS, INFORMATION SYSTEMS, *COMPUTERS, *GRAPHICS, *INTERACTIONS, COMPUTERS, GRAPHICS, COMPUTERS, NETWORKS, COMPUTER STORAGE MANAGEMENT (U)

;CONTENTS: AUTOMATIC PROGRAMMING; COMPUTATION STRUCTURES; COMPUTER SYSTEMS RESEARCH; DYNAMIC MODELING, COMPUTER GRAPHICS, AND COMPUTER NETWORKS; EDUCATIONAL COMPUTER SYSTEMS; MATHLAB; PLANNER; SIMPL; THEORY OF AUTOMATA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 756 729 9/2
MASSACHUSETTS COMPUTER ASSOCIATES INC WAKEFIELD

COMPILER DESIGN FOR THE ILLIAC IV. (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. NO. 6, 14 JUL 72-13 FEB 73,
FEB 73 190P MILLSTEIN,ROBERT E. ;
REPT. NO. CADD-7302-2011
MONITOR: AROD 9187.8-A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 13 JUL 72, AD-748 226.

DESCRIPTORS: (*COMPILERS, DESIGN), (*COMPUTER PROGRAMMING, INSTRUCTION MANUALS), ALGORITHMS, SHIFT REGISTERS, MEMORY DEVICES, PERMUTATIONS, CONTROL SEQUENCES (U)
IDENTIFIERS: PROGRAMMING MANUALS, FORTRAN, ILLIAC, *ILLIAC 4 COMPUTER (U)

THE REPORT CONTAINS SPECIFICATIONS AND ALGORITHMS FOR COMPILER DESIGN FOR THE ILLIAC 4 COMPUTER. THE IMPLEMENTATION OF THE FORTRAN COMPILER IVTRAN IS DESCRIBED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 756 961 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

'URAL' GENERAL-PURPOSE AUTOMATIC DIGITAL COMPUTER (PROGRAMMING INSTRUCTIONS, STORAGE UNITS, BOOK 1: GENERAL INFORMATION), (U)

FEB 73 39P KONOPLYA,N. M. ;
REPT. NO. FTD-MT-24-1680-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. UNIVERSALNYE AVTOMATICHESKIE TSIFROVYE VYCHISLITELNYE MASHINY 'URAL' INSTRUKTSIYA PO PROGAMMIROVANIYU NAKOPITELI KNIGA 1. OBSHCHIE SVEDENIYA PSO.170.007.12, N.P., 1969 N1 P1-23, BY BERNARD L. TAUBER.

DESCRIPTORS: (*COMPUTER PROGRAMMING, INSTRUCTION MANUALS), DIGITAL COMPUTERS, MEMORY DEVICES, MAGNETIC TAPE, CODING, USSR (U)
IDENTIFIERS: TRANSLATIONS, *URAL COMPUTERS (U)

THE REPORT REPRESENTS PART OF THE PROGRAMMING INSTRUCTIONS FOR 'URAL' TYPE COMPUTERS AND CONTAINS GENERAL INFORMATION ON THE MAGNETIC TAPE, DRUM, DISC AND FERRITE CORE STORAGE UNITS USED AS MEMORY DEVICES IN THESE COMPUTERS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 757 181 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER PROJECT SEMI-ANNUAL TECHNICAL REPORT, FEBRUARY 1, 1972 TO JULY 31, 1972. (U)

72 59P
CONTRACT: DAHC04-71-C-0011, ARPA ORDER-1731

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, NETWORKS), DATA TRANSMISSION SYSTEMS, INPUT OUTPUT DEVICES, INFORMATION RETRIEVAL, COMPUTER PROGRAMMING (U)
IDENTIFIERS: ARPA COMPUTER NETWORK, PDP-10 COMPUTERS, *COMPUTERS, *NETWORKS, COMPUTER STORAGE MANAGEMENT (U)

THE GOAL OF THE PROJECT IS THE DEVELOPMENT OF A SHARED, LARGE-SCALE DATA SYSTEM FOR THE ARPA COMMUNITY. THE SYSTEM MAY BE VIEWED AS A BOX THAT PERFORMS THE FUNCTIONS OF DATA STORAGE AND DATA MANAGEMENT ON BEHALF OF MULTIPLE COMPUTERS SIMULTANEOUSLY CONNECTED TO THE BOX. THE TOPICS DISCUSSED IN THE REPORT INCLUDE THE FOLLOWING: HARDWARE INSTALLATION; SOFTWARE DESIGN AND IMPLEMENTATION; COORDINATION ACTIVITIES; AND WORKING PAPER NO. 5, 'DATACOMPUTER SOFTWARE ARCHITECTURE--REVISION 1'. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 757 495 9/2 5/2
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER

IMPROVEMENT IN A SYSTEM'S THROUGHPUT--FROM THE STANDPOINT OF FILE ORGANIZATION AND SEARCHING STRATEGIES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 72 162P CHIN,YEH-HAO ;RAMAMOORTHY, C. V. ;
REPT. NO. TR-137
CONTRACT: F44620-71-C-0091, NSF-GJ-28452
PROJ: AF-4751
MONITOR: AFOSR TR-72-2014

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, *INFORMATION RETRIEVAL), SEARCH THEORY, ALGORITHMS, MATHEMATICAL LOGIC, DECISION THEORY, CONVEX SETS, MATHEMATICAL MODELS, THEOREMS (U)
IDENTIFIERS: RESOURCE ALLOCATION, *FILE STRUCTURES, INFORMATION SYSTEMS, *COMPUTER STORAGE MANAGEMENT (U)

EVEN AFTER TWO DECADES OF COMMERCIAL AVAILABILITY OF THE COMPUTER, THE 'POTENTIALITY' OF THE DIGITAL SYSTEM HAS BEEN USED MERELY 65 PERCENT OR LESS. THE REASONS FOR INEFFICIENT USE ARISE PARTLY FROM INEFFICIENT DESIGN OF SYSTEM SOFTWARE RATHER THAN LIMITATIONS DUE TO HARDWARE. FILE ORGANIZATION AND THE STRUCTURE OF MEMORY HIERARCHY ARE PORTIONS OF THE TOTAL MEMORY MANAGEMENT SYSTEM WHICH IS THE MOST INFLUENTIAL FACTOR OF A DIGITAL SYSTEM'S THROUGHPUT. IN THIS REPORT THE CASE OF A LARGE FILE IS CONSIDERED IN WHICH THE FREQUENCY OF USE OF ITS COMPONENT SUBFILES ARE KNOWN. THE ORGANIZATION OF THE FILE IS DEVELOPED SO THAT THE AVERAGE NUMBER OF ENTRIES TO LOCATE K (>1) ITEMS AT A TIME IN IT BY MEANS OF BINARY SEARCH OR SEQUENTIAL SEARCH IS MINIMIZED. THE METHODS ARE USED TO SOLVE THE REALISTIC PROBLEM OF DESIGNING AN OPTIMAL MEMORY HIERARCHY TO HOLD THE FILE IN A COMPUTER SYSTEM. (AUTHOR MODIFIED ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 757 686 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

NETWORK DATA HANDLING SYSTEM. (U)

DESCRIPTIVE NOTE: SEMIANNUAL TECHNICAL REPT. 1 AUG 72-31 JAN 73,
JAN 73 37P MARILL,THOMAS ;
CONTRACT: DAHC04-71-C-0011, ARPA ORDER-1731
MONITOR: AROD 9816:2-A

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON DATACOMPUTER PROJECT.

DESCRIPTORS: (*DATA PROCESSING, NETWORKS), (*PROGRAMMING LANGUAGES, DESIGN), (*DATA STORAGE SYSTEMS, PERFORMANCE(ENGINEERING)), DATA TRANSMISSION SYSTEMS, INFORMATION RETRIEVAL, WEATHER COMMUNICATIONS, COMPUTER PROGRAMMING (U)
IDENTIFIERS: INFORMATION SYSTEMS, *COMPUTERS, *NETWORKS, COMPUTER STORAGE MANAGEMENT (U)

THE REPORT DESCRIBES THE ACTIVITIES FOR THE PERIOD 1 AUG 1972 - 31 JAN 1973. THE ACTIVITY ON THE PROJECT HAS CENTERED ON DEVELOPMENT OF THE FIRST SOFTWARE RELEASE, INITIAL SYSTEM DEMONSTRATION, COORDINATION WITH POTENTIAL USERS, AND WORK ON A GLOBAL WEATHER DATA BASE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 758 204 9/2
HARVARD UNIV CAMBRIDGE MASS

A SPACE-EFFICIENT LIST STRUCTURE TRACING ALGORITHM, (U)

JUN 72 11P WEGBREIT,BEN

CONTRACT: F19628-71-C-0174, ARPA ORDER-952
MONITOR: ESD TR-72-309

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMMING, ALGORITHMS), DATA STORAGE SYSTEMS, OPERATION (U)
IDENTIFIERS: *COMPUTER STORAGE MANAGEMENT (U)

THE NOTE PRESENTS AN ALGORITHM FOR TRACING DURING GARBAGE COLLECTION OF LIST STRUCTURE. IT REQUIRES ONLY ONE BIT FOR EACH LEVEL OF DOUBLY BRANCHING STRUCTURE TRACED. COMPARED TO EXISTING TRACE ALGORITHMS, IT GENERALLY REQUIRES LESS STORAGE -- OFTEN, SUBSTANTIALLY LESS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 758 243 9/2
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER

SOME DIAGNOSTIC APPROACHES FOR COMPUTER SYSTEM DESIGN. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 72 101P CHANG,LIH-CHUNG ;
RAMAMOORTHY,C. V. ;
REPT. NO. TR-133
CONTRACT: F44620-71-C-0091, NSF-GJ-28452
PROJ: AF-4751
MONITOR: AFOSR TR-72-1911

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, RELIABILITY(ELECTRONICS)), COMPUTER PROGRAMMING, SWITCHING CIRCUITS, GATES(CIRCUITS), GRAPHICS, MATHEMATICAL LOGIC, ITERATIONS, THEOREMS (U)
IDENTIFIERS: MICROPROGRAMMING, ARITHMETIC AND LOGIC UNITS, GRAPHS, SWITCHING THEORY, COMPUTERS, FAULT DETECTION (U)

THE PURPOSE OF THE REPORT IS TWOFOLD; FIRSTLY, IT ATTEMPTS TO SURVEY SOME BASIC IDEAS AND PRACTICES IN THE AREA OF FAULT-TOLERANT COMPUTING, AND SECONDLY, IT ATTEMPTS TO MOLD THESE INTO A THEORETICAL FRAMEWORK THAT COULD HELP IN DEVELOPING BOTH DESIGN STRATEGIES AND TESTING PROCEDURES FOR COMPUTING SYSTEMS. A DIAGNOSTIC THEORY IS GIVEN WHICH CAN CHARACTERIZE THE RELATIONSHIPS BETWEEN TESTS AND FAULTS PROPERLY. BASED ON THIS THEORY, SEVERAL EFFECTIVE PROCEDURES ARE DEVELOPED FOR THE DETECTION AND LOCATION OF FAULTS. A STRUCTURAL MODEL OF THE COMPUTER SYSTEM IS CONSTRUCTED BY THE APPLICATION OF GRAPH THEORY. IN THIS MODEL, BLOCKING GATE APPROACH IS USED TO GENERATE TEST PATHS FOR THE DIAGNOSTICS OF THIS SYSTEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 759 189 9/2 9/1
ROCKWELL INTERNATIONAL CORP ANAHEIM CALIF ELECTRONICS GROUP

SURVIVABLE P-CHANNEL METAL-OXIDE-SEMICONDUCTOR (PMOS) COMPUTER DESIGN. (U)

DESCRIPTIVE NOTE: FINAL REPT. 20 MAR-20 SEP 72, MAR 73 134P BUTCHER,DARYL T. ;MADDOX, HOWARD M. ;NIELSEN,ROBERT L. ;
REPT. NO. C72-446/501
CONTRACT: F33615-72-C-1732
PROJ: AF-3176
MONITOR: AFAL TR-73-31

UNCLASSIFIED REPORT

DESCRIPTORS: (*INTEGRATED CIRCUITS, DAMAGE), (*COMPUTERS, RELIABILITY(ELECTRONICS)), LOGIC CIRCUITS, VULNERABILITY, MEMORY DEVICES, INPUT OUTPUT DEVICES, POWER SUPPLIES, GUIDED MISSILE COMPUTERS, (U)GUIDED MISSILE COMPUTERS (U)
IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS, METAL OXIDE SEMICONDUCTORS, AVIONICS, CENTRAL PROCESSING UNITS, RADIATION HARDENING, COMPUTERS (U)

THE SIGNIFICANCE OF THIS PROJECT TO THE AIR FORCE IS THE FACT THAT IT PROVIDES ASSESSMENT, AND DEVELOPS SPECIFICATIONS FOR EMPLOYMENT, OF ADVANCED RADIATION-HARDENED FIELD-EFFECT 41.E., METAL-OXIDE-SEMICONDUCTOR (MOS) AND METAL-NITRIDE-OXIDE-SEMICONDUCTOR (MNOS)5 TECHNOLOGIES FOR MILITARY/SPACE COMPUTER SYSTEMS. THE CHARACTERISTICS AND CAPABILITIES OF THE DEVICE AND PACKAGING TECHNOLOGIES, REQUIRED FOR MOS/MNOS COMPUTER CONSTRUCTION, ARE DEFIEND AND COMPARED TO THE TECHNIQUES AND HARDWARE REQUIREMENTS FOR LONG-LIFE COMPUTER SYSTEMS. A COMPUTER ARCHITECTURE IS DERIVED FROM THE COMPARISON ANALYSIS. (AUTHRO MODIFIED ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 759 348 9/2
NAVAL RESEARCH LAB WASHINGTON D C

A LIBRARY MANAGEMENT PROGRAM FOR THE 813 DISK FILE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 73 46P TOOTHMAN,HAROLD L. ;
REPT. NO. NRL-MR-2570, NRL-COMPUTER BULL-31
PROJ: NRL-001-03-A

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMS, MEMORY DEVICES), INFORMATION RETRIEVAL, MAGNETIC TAPE, PUNCHED CARDS, ALGORITHMS (U)
IDENTIFIERS: MAGNETIC DISKS, CDC 3800 COMPUTERS, FORTRAN (U)

RANDISK IS A CDC 3800 FORTRAN AND ASSEMBLY LANGUAGE PROGRAM WHICH ALLOWS THE STORAGE OF DATA, AND SOURCE AND OBJECT LANGUAGE FILES ON THE 813 DISK FILE BY A USER ASSIGNED NAME. THESE FILES CAN BE RECALLED BY NAME AND TRANSFERRED TO A LOGICAL UNIT FOR FURTHER USE. THE USER HAS SOME CONTROL OF LOGICAL UNITS UNDER RANDISK AND MAY DOCUMENT HIS LIBRARY ON TAPE RAPIDLY. DATA COMPRESSION OF CARD IMAGE FILES CAN BE PERFORMED. THE SOURCE LANGUAGE LISTING IS INCLUDED. (AUTHOR MODIFIED ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 759 367 9/2
NAVAL UNDERWATER SYSTEMS CENTER NEWPORT R I

THE ORGANIZATION AND CONTROL OF A SLAVE MEMORY HIERARCHY. (U)

DESCRIPTIVE NOTE: RESEARCH REPT.,
FEB 73 122P GORDON,ROBERT L. ;
REPT. NO. NUSC-TR-4429
PROJ: NUSC-A-916-00, ZFXX-112
TASK: ZFXX-112-001

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA STORAGE SYSTEMS, OPTIMIZATION), MATHEMATICAL MODELS, INFORMATION RETRIEVAL, COMPUTER PROGRAMMING (U)
IDENTIFIERS: GPSS PROGRAMMING LANGUAGE, IBM 360 COMPUTERS, *COMPUTER STORAGE MANAGEMENT, COMPUTERIZED SIMULATION (U)

A LOGICAL AND PHYSICAL ORGANIZATION OF A COMPUTER MEMORY SYSTEM THAT COMPLETELY AUTOMATES THE STORING AND MOVING OF INFORMATION IS OUTLINED. INFORMATION USED BY THE COMPUTER PHYSICALLY RESIDES IN AN OPEN-ENDED HIERARCHY OF MEMORY DEVICES IN WHICH EACH DEVICE IS RESPONSIBLE FOR THE MANAGEMENT OF ITS OWN CONTENTS. ALL MEMORIES IN THE HIERARCHY ARE 'SLAVED' TO THE PRIMARY MEMORY, BECAUSE ACTIVITY IN THE PRIMARY MEMORY TRIGGERS ACTIVITY AT THE OTHER LEVELS. (AUTHOR MODIFIED ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 759 545 9/2
TEXAS UNIV AUSTIN ELECTRONICS RESEARCH CENTER

OPTIMAL SQUARE-ROOTING ALGORITHMS FOR HARDWARE IMPLEMENTATION. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
DEC 72 107P KIM,KWANG HAE ;RAMAMOORTHY, C. V. ;
REPT. NO. TM-37
CONTRACT: F44620-71-C-0091, NSF-GJ-28452
PROJ: AF-4751
MONITOR: AFOSR TR-73-0682

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMMING, TRANSCENDENTAL FUNCTIONS), ALGEBRA, ALGORITHMS, ITERATIONS, THESES (U)
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, COMPUTATION, IBM 360/91 COMPUTERS, SQUARE ROOTS (U)

THE MAIN OBJECTIVE OF THIS THESIS IS THE COMPREHENSIVE ANALYSIS AND SYNTHESIS WITH THE HARDWIRED SQUARE-ROOTING, BELIEVED TO BE THE FIRST SUBJECT TO BE IMPLEMENTED AMONG VARIOUS FUNCTIONS WHICH ARE BEING EVALUATED MOSTLY IN SOFTWARE AT PRESENT. TWO NEW EFFICIENT ALGORITHMS FOR HARDWIRED SQUARE-ROOTING, HERE CALLED THE ALGORITHM G AND ALGORITHM T, HAVE BEEN DEVELOPED AND PRESENTED IN THE MOST DETAIL. THESE USE MULTIPLICATION AND NO DIVISION. FURTHERMORE, ALGORITHM G POSSESSES THE PROPERTY OF QUADRATIC CONVERGENCE, A VERY IMPORTANT ONE FOR THE MACHINE OF LARGE WORD LENGTH AS FAR AS SPEED IS CONCERNED. ALGORITHM T IS SUITABLE FOR THE MACHINE OF MEDIUM WORD LENGTH. (AUTHOR MODIFIED ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 759 710 9/2
NAVAL ELECTRONICS LAB CENTER SAN DIEGO CALIF

A HARD-WIRED FAST FOURIER TRANSFORM PROCESSOR USING AX+B MODULES. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT REPT. FEB-SEP 72,
FEB 73 38P WASILEWSKI,J. W. ;
REPT. NO. NELC-TR-1860
PROJ: NELC-R207

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, MODULES(ELECTRONICS)), ANALOG-TO-DIGITAL CONVERTERS, LOGIC CIRCUITS, POWER SPECTRA, MEMORY DEVICES (U)
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, SIGNAL PROCESSING, FOURIER TRANSFORMATION, FAST FOURIER TRANSFORM (U)

A SIGNAL PROCESSOR WAS BUILT USING ONE IDENTICAL BUILDING BLOCK IN THE PROCESSING UNIT. THE DESIGN UTILIZES MODULARITY AS WELL AS MICROPROGRAMMED CONTROL. THE UNIT TRANSFORMS 64 INPUT SAMPLES INTO 64 FOURIER COEFFICIENT EACH WITH A WORD LENGTH OF 9 BITS. THE RESULTING COMPLEX COEFFICIENTS ARE SQUARED AND DISPLAYED ON A SCOPE. THE ARCHITECTURE OF THE PROCESSOR MAKES POSSIBLE A HIGH-SPEED UTILIZATION OF HARDWARE. A PROVISION IS MADE TO SCALE THE PARTIAL RESULTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 171 11/3
BRITISH COLUMBIA UNIV VANCOUVER DEPT OF ELECTRICAL ENGINEERING

PLASMA ANODIZATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. 21 JUN 71-20 JUN 72, NOV 72 50P PULFREY,DAVID L. ;YOUNG, LAWRENCE ;OLIVE,GRAHAM ;
CONTRACT: F33615-71-C-1886
MONITOR: AFAL TR-72-362

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED MAR 71, AD-722 490.

DESCRIPTORS: (*ANODIC COATINGS, PLASMA MEDIUM), (*DIELECTRIC FILMS, PLASMA MEDIUM), TANTALUM, NIOBIUM, SILICON DIOXIDE, THIN FILM STORAGE DEVICES, CANADA (U)
IDENTIFIERS: METAL OXIDE SEMICONDUCTORS, *ANODIC COATINGS, SEMICONDUCTOR COMPUTER STORAGE, THIN FILMS (U)

THE PROCESS OF PLASMA ANODIZATION HAS BEEN INVESTIGATED USING TWO SYSTEMS. THE FIRST WAS A COLD CATHODE DC DISCHARGE SYSTEM (REPLACING APPARATUS DESCRIBED IN OUR EARLIER REPORTS) WITH AUTOMATED ELLIPSOMETRY TO CONTINUOUSLY FOLLOW THE GROWTH OF THE OXIDE. THE SECOND SYSTEM EMPLOYED AN R.F. DISCHARGE WITH GROWTH OF THE OXIDE BEING FOLLOWED BY MONITORING THE INTENSITY REFLECTIVITY OF S-LIGHT FROM A HE/NE LASER. EXPERIMENTS ARE DESCRIBED WHICH INDICATE THAT NEGATIVE OXYGEN IONS FORM THE PLASMA ARE NOT DIRECTLY INVOLVED IN THE GROWTH OF OXIDES ON TANTALUM IN A D.C. DISCHARGE. ALSO REPORTED ARE DATA ON THE THICKNESS-AND TEMPERATURE-DEPENDENCE OF THE RELATION BETWEEN OXIDE FIELD AND OXIDE GROWTH RATE FOR THE CASE OF SI ANODIZATION IN AN R.F. DICHARGE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 274 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THREE-SPEED TAPE PERFORATOR PL-75-100-150, (U)

APR 73 8P KOVALENKO,N. P. ;FEDOROV, A. D. ;ZINCHENKO,A. F. ;
REPT. NO. FTD-HT-23-0251-73
PROJ: FTD-T71-05-09, FTD-T71-05-13

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MEKHANIZATSIYA I AVTOMATIZATSIYA UPRAVLENIYA (USSR) N1 P46-47 1972, BY FRANCIS T. RUSSELL.

DESCRIPTORS: (*INPUT OUTPUT DEVICES, DESIGN), PUNCHED TAPE, USSR (U)
IDENTIFIERS: *TAPE PUNCHES, TRANSLATIONS (U)

TAPE PERFORATORS BELONG TO THE LIST OF VERY IMPORTANT DEVICES FOR THE OUTPUT OF INFORMATION FROM COMPUTERS AND AUTOMATIC SYSTEMS. THE REPORT DESCRIBES A THREE-SPEED TAPE PERFORATOR, PL-75-100-150 WHICH PROVIDES PERFORATION OF TAPE AT THREE SPEEDS. THE MAIN THING IN THE DEVELOPMENT AND STUDY OF THIS PERFORATOR WAS THE CREATION OF A BLOCK DIAGRAM OF CODE SELECTION WHICH PROVIDES TAPE PERFORATION AT ANY SPEED, I.E., FROM 0 TO 150 LINES/SECOND. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 296 9/2
BROWN UNIV PROVIDENCE R I CENTER FOR COMPUTER AND INFORMATION SCIENCES

THE BROWN UNIVERSITY GRAPHICS SYSTEM(BUGS) OVERVIEW. (U)

DESCRIPTIVE NOTE: TECHNICAL PAPER,
FEB 73 35P STABLER,GEORGE M. ;
CONTRACT: N00014-67-A-0191-0023, NSF-GJ-28401

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, GRAPHICS), INPUT OUTPUT DEVICES, DISPLAY SYSTEMS, SHIFT REGISTERS, COMPUTER PROGRAMMING (U)
IDENTIFIERS: MICROPROGRAMMING, ARITHMETIC AND LOGIC UNITS, COMPUTERS, GRAPHICS (U)

THE AIM OF THE DOCUMENT IS TO PROVIDE A UNIFIED OVERVIEW OF THE CURRENT RESEARCH ACTIVITIES OF THE BROWN UNIVERSITY GRAPHICS PROJECT. THE STATED OBJECTIVES OF THE PROJECT'S ACTIVITIES ARE AN INVESTIGATION INTO THE AREA OF MEDIUM-COST, MICROPROGRAMMABLE, INTELLIGENT GRAPHICS TERMINALS AND THE 'DIVISION OF LABOR' TRADE-OFFS BETWEEN A MAINFRAME PROCESSOR AND THE INTELLIGENT SATELLITE. A HIGH LEVELSYSTEM IMPLEMENTATION LANGUAGE AND A FACILITY FOR ONLINE SYMBOLIC DEBUGGING OF GRAPHIC DATA STRUCTURES ARE TO BE PROVIDED FOR SYSTEM IMPLEMENTERS AND USERS. ALSO OF INTEREST IS THE IMPACT WHICH MIROCPROGRAMMING HAS ON THE DESIGN OF OTHER ASPECTS OF A GRAPHICS TERMINAL, FOR EXAMPLE, SYSTEM CONFIGURATION AND THE LOCAL OPERATING SYSTEM DESIGN. THE MOTIVATION AND AIMS OF THE PROJECT ARE DISCUSSED IN DETAIL. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 305 9/2
BROWN UNIV PROVIDENCE R I DIV OF APPLIED MATHEMATICS

THE SUPER INTEGRAL MICROPROGRAMMED ARITHMETIC LOGIC EXPEDITER (SIMALE), (U)

JAN 73 22P WEBBER,HAROLD H. , JR;
CONTRACT: N00014-67-A-0191-0023, NSF-GJ-28401
PROJ: NR-049-334

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PUB. IN SIGMICRO, V3 N4 22P 1973.

DESCRIPTORS: (*DATA PROCESSING, GRAPHICS), INTERFACES, DISPLAY SYSTEMS, COMPUTER PROGRAMMING, SHIFT REGISTER(U)
IDENTIFIERS: MICROPROGRAMMING, PARALLEL PROCESSORS, ARITHMETIC AND LOGIC UNITS, COMPUTERS, GRAPHICS (U)

THE PAPER DISCUSSES THE SIMALE WHICH IS A VERY HIGH SPEED, DYNAMICALLY MICROPROGRAMMED, PARALLEL PROCESSING COMPUTER. IT WILL SOON BE INTEGRATED INTO THE BROWN UNIVERSITY GRAPHICS SYSTEM WHERE IT WILL BE USED PRIMARILY FOR REAL-TIME PICTURE TRANSFORMATIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 669 12/1 9/2
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER BETHESDA MD

A COMPARATIVE STUDY OF SEVERAL CORE STORAGE SCHEMES FOR LARGE SPARSE POSITIVE DEFINITE MATRICES WITH REFERENCE TO THE CHOLESKY ALGORITHM, (U)

NOV 72 38P GIGNAC,DONALD A. ;
REPT. NO. NSRDC-4017
PROJ: SR014-03
TASK: SR014-03-01, 15322

UNCLASSIFIED REPORT

DESCRIPTORS: (*MATRICES(MATHEMATICS), *COMPUTER PROGRAMMING), COMPILERS, MEMORY DEVICES, ALGORITHMS (U)
IDENTIFIERS: CHOLESKY DECOMPOSITION, *SPARSE MATRIX, FINITE ELEMENT ANALYSIS, FORTRAN, STRUCTURAL ANALYSIS (U)

IN THE FINITE ELEMENT APPROACH TO STATIC STRUCTURAL ANALYSIS, THE SOLUTION OF THE EQUATION KU = P A POSITIVE DEFINITE SYSTEM OF SIMULTANEOUS LINEAR EQUATIONS, IS BASIC. CONSIDERABLE DIFFICULTY MAY BE EXPERIENCED WHEN K IS VERY LARGE AND SPARSE. THE REPORT DOCUMENTS AN INVESTIGATION OF SEVERAL FORTRAN SUBROUTINES IN ORDER TO OBTAIN AN EFFICIENT CHOLESKY ALGORITHM SUBROUTINE WITH ECONOMICAL CORE STORAGE FOR AN IN-CORE SOLUTION OF KU = P FOR LARGE SPARSE K. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 760 954 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

GENERAL PURPOSE AUTOMATIC DIGITAL COMPUTER URAL-14 TECHNICAL DESCRIPTION. (U)

APR 73 120P
REPT. NO. FTD-MT-24-1677-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. UNIVERSALNYE AVTOMATICHESKIE TSIFROVYE VYCHISLITELNYE MASHINY URAL-14 TEKHNICHESKOE OPISANIE PSO.170.008TO. SISTEMA KOMAND, N.P., 1968 N2 P1-67, BY CHARLES T. OSTERTAG, JR.

DESCRIPTORS: (*DIGITAL COMPUTERS, INSTRUCTION MANUALS), DATA STORAGE SYSTEMS, SHIFT REGISTERS, MAGNETIC TAPE, COMPUTER PROGRAMMING, USSR (U)
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, TRANSLATIONS (U)

THE INSTRUCTION SYSTEM FOR THE URAL-14 COMPUTER CONTAINS UP TO 230 INSTRUCTIONS AND CAN BE CHANGED DEPENDING ON THE CONFIGURATION OF THE COMPUTER. THE DESCRIPTION INCLUDES: A DESCRIPTION OF THE GROUP OF DATA-TRANSFER AND ARITHMETIC OPERATIONS; A DESCRIPTION OF THE GROUP OF THE OPERATIONS PERFORMED BY THE CONTROL UNIT ON THE BASIS OF CONTROL INSTRUCTIONS; A DESCRIPTION OF THE GROUPS OF OPERATIONS PERFORMED BY THE COMPUTER DURING THE SERVICING OF INPUT-OUTPUT UNITS AND DATA STORAGE UNITS; A DESCRIPTION OF SERVICE OPERATIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 172 9/2
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

A SIMULATOR FOR COMPUTER SYSTEMS WITH STORAGE UNITS HAVING ROTATIONAL DELAYS. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
AUG 72 23P FULLER,SAMUEL H. ;
REPT. NO. TN-16
CONTRACT: N00014-67-A-0112-0044, AT-(04-3)-515

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY DEVICES, SCHEDULING), (*DATA STORAGE SYSTEMS, SIMULATION), COMPUTER PROGRAMS, INSTRUCTION MANUALS, PERFORMANCE(ENGINEERING) (U)
IDENTIFIERS: MAGNETIC DISKS, MAGNETIC DRUMS, SIMULATOR ROUTINES, FORTRAN, IBM 360 COMPUTERS, COMPUTERIZED SIMULATION (U)

THE NOTE DESCRIBES A SIMULATOR FOR COMPUTER SYSTEMS WITH SECONDARY STORAGE UNITS HAVING ROTATIONAL DELAYS, I.E., DRUMS AND DISKS. THIS SIMULATOR IS ABLE TO MODEL A WIDE RANGE OF DRUMS AND DISKS AND IS PRIMARILY INTENDED TO BE USED TO STUDY ALTERNATIVE SCHEDULING DISCIPLINES FOR ROTATING STORAGE DEVICES. A DISCUSSION IS INCLUDED ON THE PRECISION OF THE SUMMARY STATISTICS OF THE SIMULATOR, AND A SHORT USER'S GUIDE IS PROVIDED TO AID OTHERS IN THE USE OF THE SIMULATOR. THE REPORT INCLUDES SOME IBM 360 FORTRAN LISTINGS FOR THE MAIN SIMULATOR LOOP. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 175 9/2
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

PERFORMANCE OF AN I/O CHANNEL WITH MULTIPLE PAGING DRUMS. (DIGEST EDITION). (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 27, AUG 72 9P FULLER,SAMUEL H. ;
REPT. NO. SU-SEL-73-010, STAN-CS-73-351
CONTRACT: N00014-67-A-0112-0044, AT-(04-3)515
PROJ: AF-7101

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY DEVICES, OPTIMIZATION), SCHEDULING, PERFORMANCE(ENGINEERING), STOCHASTIC PROCESSES, MATHEMATICAL MODELS (U)
IDENTIFIERS: *MAGNETIC DRUMS, MARKOV CHAINS, PAGED ENVIRONMENT (U)

FOR ROTATING STORAGE UNITS, A PAGING DRUM ORGANIZATION IS KNOWN TO OFFER SUBSTANTIALLY BETTER RESPONSE TIME TO I/O REQUESTS THAN IS A MORE CONVENTIONAL (FILE) ORGANIZATION. WHEN SEVERAL, ASYNCHRONOUS PAGING DRUMS ARE ATTACHED TO A SINGLE I/O CHANNEL, HOWEVER, MUCH OF THE GAIN IN RESPONSE TIME DUE TO THE PAGING ORGANIZATION IS LOST; THIS ARTICLE INVESTIGATES THE REASONS FOR THIS LOSS IN PERFORMANCE. A MODEL OF AN I/O CHANNEL WITH MULTIPLE PAGING DRUMS IS PRESENTED AND A MARKOV CHAIN THAT CLOSELY APPROXIMATES THE BEHAVIOR OF THE I/O CHANNEL IS EMBEDDED INTO THE MODEL. THE ANALYSIS THEN LEADS TO THE MOMENT GENERATING FUNCTION OF SECTOR QUEUE SIZE AND THE LAPLACE-STIELTJES TRANSFORM OF THE WAITING TIME. A SIGNIFICANT OBSERVATION IS THAT THE EXPECTED WAITING TIME FOR AN I/O REQUEST TO A DRUM CAN BE DIVIDED INTO TWO TERMS: ONE INDEPENDENT OF THE LOAD OF I/O REQUEST TO THE DRUM AND ANOTHER THAT MONOTONICALLY INCREASES WITH INCREASING LOAD. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 176 9/2
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

THE EXPECTED DIFFERENCE BETWEEN THE SHORTEST LATENCY TIME FIRST (SLTF) AND MINIMAL TOTAL PROCESSING TIME (MTPT) DRUM SCHEDULING DISCIPLINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 28,
AUG 72 7P FULLER,SAMUEL H. ;
REPT. NO. SU-SEL-73-011, STAN-CS-72-352
CONTRACT: N00014-67-A-0112-0044, AT-(04-3)515
PROJ: AF-7101

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY DEVICES, SCHEDULING), ALGORITHMS, SIMULATION (U)
IDENTIFIERS: *MAGNETIC DRUMS, RANDOM WALK (U)

THE REPORT IS A SEQUEL TO AN EARLIER REPORT (FULLER, 1971) THAT DEVELOPS A MINIMAL-TOTAL-PROCESSING-TIME (MTPT) DRUM SCHEDULING ALGORITHM. A QUANTITATIVE COMPARISON BETWEEN MTPT SCHEDULES AND SHORTEST-LATENCY-TIME-FIRST (SLTF) SCHEDULES, COMMONLY ACKNOWLEDGED AS GOOD SCHEDULES FOR DRUM-LIKE STORAGE UNITS, IS PRESENTED HERE. THE ANALYSIS DEVELOPS AN ANALOGY TO RANDOM WALKS AND PROVES SEVERAL ASYMPTOTIC PROPERTIES OF COLLECTIONS OF RECORDS ON DRUMS. THESE PROPERTIES ARE SPECIALIZED TO THE MTPT AND SLTF ALGORITHMS AND IT IS SHOWN THAT FOR SUFFICIENTLY LARGE SETS OF RECORDS, THE EXPECTED PROCESSING TIME OF A SLTF SCHEDULE IS LONGER THAN A MTPT SCHEDULE BY THE EXPECTED RECORD LENGTH. THE RESULTS OF A SIMULATION STUDY ARE ALSO PRESENTED TO SHOW THE DIFFERENCE IN MTPT AND SLTF SCHEDULES FOR SMALL SETS OF RECORDS AND FOR SITUATIONS NOT COVERED IN THE ANALYTIC DISCUSSION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 185 9/2
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

RANDOM ARRIVALS AND MINIMAL TOTAL PROCESSING TIME (MTPT) DISK SCHEDULING DISCIPLINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 29,
AUG 72 10P FULLER,SAMUEL H. ;
REPT. NO. SU-SEL-73-012, STAN-CS-73-353
CONTRACT: N00014-67-A-0112-0044, AT-(04-3)515
PROJ: AF-7101

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY DEVICES, SCHEDULING), ALGORITHM(U)
IDENTIFIERS: *MAGNETIC DRUMS, MAGNETIC DISKS (U)

THE ARTICLE INVESTIGATES THE APPLICATION OF MINIMAL-TOTAL-PROCESSING TIME (MTPT) SCHEDULING DISCIPLINES TO ROTATING STORAGE UNITS WHEN RANDOM ARRIVAL OF REQUESTS IS ALLOWED. FIXED-HEAD DRUM AND MOVING-HEAD DISK STORAGE UNITS ARE CONSIDERED AND PARTICULAR EMPHASIS IS PLACED ON THE RELATIVE MERITS OF THE MTPT SCHEDULING DISCIPLINE WITH RESPECT TO THE SHORTEST-LATENCY-TIME-FIRST (SLTF) SCHEDULING DISCIPLINE. THE DATA PRESENTED ARE THE RESULTS OF SIMULATION STUDIES. SITUATIONS ARE DISCOVERED IN WHICH THE MTPT DISCIPLINE IS SUPERIOR TO THE SLTF DISCIPLINE, AND SITUATIONS ARE ALSO DISCOVERED IN WHICH THE OPPOSITE IS TRUE. AN IMPLEMENTATION OF THE MTPT SCHEDULING ALGORITHM IS PRESENTED AND THE COMPUTATIONAL REQUIREMENTS OF THE ALGORITHM ARE DISCUSSED. IT IS SHOWN THAT THE SORTING PROCEDURE IS THE MOST TIME CONSUMING PHASE OF THE ALGORITHM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 761 520 9/2
AUERBACH CORP PHILADELPHIA PA

DM-1 IMPLEMENTATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. AUG 69-DEC 72,
MAR 73 97P MUHLHAUSER,ROBERT R. ;
CONTRACT: F30602-69-C-0193
MONITOR: RADC TR-73-68

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON DATA MANAGER-1 (DM-1).

DESCRIPTORS: (*COMPUTER PROGRAMMING, INSTRUCTION MANUALS), DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL, PROGRAMMING LANGUAGES (U)
IDENTIFIERS: JOVIAL, *COMPUTER STORAGE MANAGEMENT, DATA MANAGEMENT, DATA BASES (U)

UNDER CONTRACT NO. F30602-69-C-0193 WITH ROME AIR DEVELOPMENT CENTER (RADC), AUERBACH ASSOCIATES, INC., HAS BEEN DEVELOPING DATA MANAGER (DM-1), A COMPREHENSIVE DATA BASE MANAGEMENT SYSTEM. THIS EFFORT, INITIATED IN EARLY 1969, HAS NOW PRODUCED A BASE-LINE SYSTEM WHICH IS UNDERGOING TEST AND EVALUATION IN THE RADC LABORATORY. THIS FINAL REPORT SUMMARIZES THAT EFFORT, ENTITLED DM-1 IMPLEMENTATION. DM-1 HAS BEEN IMPLEMENTED ON A HONEYWELL G-635 (FORMERLY THE GE-635) UNDER THE GCOS-III OPERATING SYSTEM. THE BASE-LINE SYSTEM WHICH IS NOW OPERATIONAL OFFERS COMPREHENSIVE DATA AND JOB HANDLING FACILITIES TO COMMAND-LEVEL USERS, AS WELL AS APPLICATIONS PROGRAMMERS. SECTION 1 OF THIS REPORT OUTLINES THE DESIGN REQUIREMENTS AND IMPLEMENTATION GUIDELINES WHICH GOVERNED THE IMPLEMENTATION EFFORT. SECTION DESCRIBES DM-1/G-635 AS IT HAS BEEN IMPLEMENTED. SECTION 3 OFFERS AUERBACH CONCLUSIONS AND RECOMMENDATIONS WITH RESPECT TO THE EFFORT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 762 774 9/2
CALIFORNIA UNIV LOS ANGELES CALIF DEPT OF COMPUTER SCIENCE

MEASUREMENT DATA ON THE WORKING SET REPLACEMENT ALGORITHM AND THEIR APPLICATIONS, (U)

72 12P OLIVER,N. ;CHU,W. W. ; OPDERBECK,H. ;

CONTRACT: N00014-69-A-0200-4927, DAHC15-69-C-0285
PROJ: NR-048-129

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN PROCEEDINGS OF THE SYMPOSIUM ON COMPUTER-COMMUNICATIONS NETWORKS AND TELETRAFFIC, POLYTECHNIC INSTITUTE OF BROOKLYN, 4-6 APR 72, P113-124 1972.

DESCRIPTORS: (*DATA PROCESSING, TIME SHARING), (*DATA STORAGE SYSTEMS, QUEUEING THEORY), ALGORITHMS, SCHEDULING (U)
IDENTIFIERS: MULTIPROGRAMMING, PAGED ENVIRONMENT, *COMPUTER STORAGE MANAGEMENT (U)

PAGE INTER-REFERENCE INTERVAL DISTRIBUTION, AVERAGE PAGE FAULT FREQUENCY (THE FREQUENCY OF THOSE INSTANCES AT WHICH AN EXECUTING PROGRAM REQUIRES A PAGE OF DATA OR INSTRUCTIONS NOT IN THE MAIN MEMORY) AVERAGE WORKING SET SIZE AND INTER-PAGE FAULT-TIME (TIME BETWEEN PAGE FAULT) DISTRIBUTION FOR A SIMULATED WORKING SET REPLACEMENT ALGORITHM FOR THREE TYPICAL PROGRAMS WITH DIFFERENT SIZES WERE MEASURED ON THE UCLA SIGMA EXECUTIVE (SEX) TIME-SHARING SYSTEM VIA PAGE REFERENCE STRINGS. THESE MEASURED RESULTS ARE REPORTED IN THIS PAPER. THE AVERAGE PAGE FAULT FREQUENCY RELATIONSHIPS BETWEEN MEASURED RESULTS ARE REPORTED IN THIS PAPER. THE AVERAGE PAGE FAULT FREQUENCY RELATIONSHIPS BETWEEN WORKING SET PARAMETERS AND PROCESS SCHEDULING ARE DISCUSSED. THESE RELATIONSHIPS ARE USEFUL IN PLANNING THE WORKING SET SIZE AND PROCESS SCHEDULING WHICH OPTIMIZE SYSTEM EFFICIENCY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 763 086 9/2 20/12
CAMBRIDGE MEMORIES INC NEWTONVILLE MASS MAGNETIC THIN FILM DEVELOPMENT DEPT

RESEARCH IN FERROMAGNETICS: DOMAIN TIP DEVICES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 JAN-31 DEC 72, JAN 73 103P SPAIN,ROBERT J. ;JAUVTIS, HARVEY I. ;CORWIN,FRANK ;
REPT. NO. 976-F
CONTRACT: F19628-72-C-0134
PROJ: AF-5632
TASK: 563202
MONITOR: AFCRL TR-73-0175

UNCLASSIFIED REPORT

DESCRIPTORS: (*THIN FILM STORAGE DEVICES, MANUFACTURING), (*SHIFT REGISTERS, DESIGN), FERROMAGNETIC MATERIALS, METAL FILMS, SUBSTRATES, ALUMINUM, DEFECTS(MATERIALS), MULTIPLEXING, OPERATION (U)
IDENTIFIERS: MAGNETIC DOMAINS, MAGNETIC FILMS, BLOCK ORIENTED RANDOM ACCESS MEMORIES, BORAM(BLOCK ORIENTED RANDOM ACCESS MEMORY), RANDOM ACCESS COMPUTER STORAGE, THIN FILMS (U)

THE DESIGN AND OPERATION OF THE DOT BLOCKING TYPE SHIFT REGISTER IS DESCRIBED AND THE RESULTS OF TIP BLOCKING EXPERIMENTS PRESENTED. AN ELECTRONIC TECHNIQUE FOR DETERMINING THE POSITION OF A CHANNEL DEFECT IS DISCUSSED. DEFECT SIZE IS ALSO CONSIDERED. ALUMINUM UNDERLAYER STUDIES WERE PERFORMED WITH AN OPTICAL INSTRUMENT CALLED THE 3ALUMINUM MEASURING INSTRUMENT3 (AMI). THE EFFECT OF PROCESS CHEMICALS ON ALUMINUM FILMS WAS ALSO STUDIED. AN OPTICAL MAGNETIC FILM THICKNESS MEASUREMENT TECHNIQUE IS DESCRIBED. A GENERAL COMPARISON OF THE DOT AND OTHER STORAGE TECHNOLOGIES IS PRESENTED. THE DOT AND BUBBLE ARE EXAMINED IN MORE DETAIL. DOT SHIFT REGISTER TECHNIQUES ARE DESCRIBED. THESE INCLUDE INPUT AND OUTPUT MULTIPLEXING AND NDRO SHIFT REGISTERS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 763 224 9/2
AUTONETICS ANAHEIM CALIF

SINGLE CRYSTAL CYLINDRICAL MAGNETIC DOMAIN MATERIALS FOR MEMORY APPLICATIONS. (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL REPT. 1 JUN 72-31 MAR 73,
JUL 73 158P GEORGE,P. K. I
REPT. NO. C70-1144/501
CONTRACT: DAAB07-70-C-0258
PROJ: DA-1-H-062101-A-327
TASK: 1-H-062101-A-32701
MONITOR: ECOM 0258-4-70

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED SEP 72, AD-749 267.

DESCRIPTORS: (*THIN FILM STORAGE DEVICES, GARNET), (*DATA STORAGE SYSTEMS, FEASIBILITY STUDIES), (*SHIFT REGISTERS, DESIGN), MAGNETIC MATERIALS, MAGNETIC PROPERTIES, MATHEMATICAL MODELS, MANUFACTURING, YTTRIUM COMPOUNDS, FERRATES, SILICON DIOXIDE, INTEGRAL EQUATIONS (U)
IDENTIFIERS: YTTRIUM IRON GARNETS, *MAGNETIC BUBBLE DOMAINS, MAGNETIC DOMAINS, MAGNETIC FILMS, PERMALLOYS, FREDHOLM EQUATIONS, THIN FILMS (U)

THE FIRST PART OF THE REPORT DESCRIBES A TWO-DIMENSIONAL MATHEMATICAL MODEL CURRENTLY BEING USED TO DESCRIBE FIELD ACCESS BUBBLE DOMAIN PROPAGATION. THE MODEL IS BASED UPON A CONTINUOUS IN-PLANE MAGNETIZATION DISTRIBUTION IN THE PERMALLOY WHICH IS DETERMINED BY MINIMIZING THE SYSTEM ENERGY-ASSUMED TO CONSIST OF ZEEMAN AND MAGNETOSTATIC ENERGY CONTRIBUTIONS. THE NUMERICAL TECHNIQUES REQUIRED TO SOLVE THE RESULTING COUPLED FREDHOLM INTEGRAL EQUATIONS ARE DESCRIBED AS WELL AS THE COMPLETE COMPUTER PROGRAM USED TO ANALYZE PROPAGATION IN REALISTIC PERMALLOY PATTERNS. RESULTS ARE PRESENTED AND DISCUSSED FOR BUBBLE PROPAGATION ALONG A 90 DEGREE CHEVRON, A T-BAR AND A Y-BAR. THE SECOND PART OF THIS REPORT DESCRIBES THE DESIGN AND CONSTRUCTION OF A HIGH-FREQUENCY MULTIPLE-BAR-CHEVRON SHIFT REGISTER. EACH OF THE INDIVIDUAL COMPONENTS - GENERATOR, TRACK, DETECTOR, ANNIHILATOR - ARE DESCRIBED ALONG WITH THE EXPERIMENTS USED TO DESIGN THEM. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 763 234 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

PROGRAMMING INSTRUCTIONS. CENTRAL PROCESSING UNITS. SYSTEM OF INSTRUCTIONS. PART I. (U)

APR 73 336P
REPT. NO. FTD-MT-24-1676-72

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED MACHINE TRANS. OF MONO. UNIVERSALNYE AVTOMATICHESKIE TSIFROVYE VYCHISLITELNYE MASHINY 'URAL-14' INSTRUKTSIYA PO PROGRAMMIROVANIYU CHAST' I TSENTRALNYE USTROISTVA. SISTEMA KOMAND PSO.170.001 I N1, N.P., 1968 P1-181, BY BERNARD L. TAUBER, AND CHARLES T. OSTERTAG, JR.

DESCRIPTORS: (*COMPUTER PROGRAMMING, INSTRUCTION MANUALS), (*DIGITAL COMPUTERS, *USSR), MEMORY DEVICES, INPUT OUTPUT DEVICES, PROGRAMMING LANGUAGES, ALGORITHMS (U)
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, CENTRAL PROCESSING UNITS, *PROGRAMMING MANUALS, TRANSLATIONS, COMPUTER INFORMATION SECURITY, COMPUTERS (U)

THE BOOK IS PART OF THE PROGRAMMING INSTRUCTIONS FOR THE 'URAL-14' ELECTRONIC DIGITAL COMPUTER AND IS DEVOTED TO A DESCRIPTION OF THE ELEMENTARY BLOCK DIAGRAM OF THE COMPUTER, THE SYSTEM OF INSTRUCTIONS FOR THE CENTRAL UNITS, AND THE DETAILED ALGORITHMS FOR THE EXECUTION OF OPERATIONS IN THESE UNITS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 764 363 9/2 12/2
SYRACUSE UNIV N Y

ASSOCIATIVE PROCESSING IN THE SOLUTION OF NETWORK PROBLEMS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 73 263P ORLANDO,VINCENT A. ;
CONTRACT: F30602-72-C-0281
MONITOR: RADC TR-73-156

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, OPERATIONS RESEARCH), MEMORY DEVICES, ALGORITHMS, MATHEMATICAL MODELS, NETWORKS, COMPUTER PROGRAMS, MULTIPLE OPERATION, THESES (U)
IDENTIFIERS: *NETWORK FLOWS, *PARALLEL PROCESSORS, *ASSOCIATIVE STORAGE, SHORTEST PATH METHOD, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE, TRANSPORTATION MODELS, DATA MANAGEMENT (U)

AN ASSOCIATIVE PROCESSOR IS A HIGHLY PARALLEL COMPUTER POSSESSING THE CAPABILITY OF ADDRESSING DATA FIELDS BY CONTENT AND PERFORMING LOGICAL AND ARITHMETIC OPERATIONS SIMULTANEOUSLY ON ALL STORAGE WORDS. CLASSICAL NETWORK PROBLEMS IN THE FIELD OF OPERATIONS RESEARCH EXHIBIT A NATURALLY ASSOCIATIVE DATA STRUCTURE AND HAVE COMPUTATIONAL REQUIREMENTS SIMILAR TO THE CAPABILITIES OF THE ASSOCIATIVE PROCESSOR. THE RESEARCH REPORTED IS A QUANTITATIVE EVALUATION OF THE APPLICABILITY OF THE ASSOCIATIVE PROCESSOR TO THE SOLUTION OF THIS CLASS OF PROBLEMS. SPECIFIC EXAMPLES EXAMINED ARE THE MINUMUM PATH, ASSIGNMENT, TRANSPORTATION, MAXIMUM FLOW AND MINIMUM COST FLOW PROBLEMS. THE RESULTS OF THIS RESEARCH EASILY SUPPORT THE CONCLUSION THAT THE ASSOCIATIVE PROCESSOR IS WELL SUITED TO THE SOLUTION OF THIS CLASS OF NETWORK PROBLEMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 764 897 9/2
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER BETHESDA MD

DESIGN TRADE-OFFS FOR A SOFTWARE ASSOCIATIVE MEMORY, (U)

MAY 73 56P BERKOWITZ, SIDNEY ;
REPT. NO. NSRDC-3531
PROJ: SR014-03
TASK: SR014-03-01

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA STORAGE SYSTEMS, SIMULATION), (*COMPUTER PROGRAMMING, INFORMATION RETRIEVAL), MEMORY DEVICES, GRAPHICS, SEARCH THEORY (U)
IDENTIFIERS: *ASSOCIATIVE STORAGE, FORTRAN, GRAPHS, COMPUTERIZED SIMULATION (U)

THE REPORT DESCRIBES AN ASSOCIATIVE (CONTENT-ADDRESSABLE) COMPUTER MEMORY SIMULATION, CALLED GIRS (GRAPH INFORMATION RETRIEVAL SYSTEM), DESIGNED TO HANDLE THE DYNAMIC INSERTION, RETRIEVAL, AND DELETION OF ARBITRARY SYMBOLIC OR NUMERIC DATA STRUCTURES. THE MAIN PURPOSE OF THE STUDY IS TO DEMONSTRATE FUNDAMENTAL TRADE-OFFS BETWEEN TIME, SPACE, COMPLEXITY, AND FLEXIBILITY IN THE FIELD-LEVEL OPERATION OF ANY ASSOCIATIVE MEMORY SIMULATION. SPECIFICALLY, THE PAPER CONCLUDES THAT: A REDUCTION OF RETRIEVAL TIME IS POSSIBLE AT THE COST OF A COMPLEX LINKAGE SCHEME AND SLOW INSERTION; THE DESIGN OF A RANDOM NODE GENERATOR CAN BE OPTIMIZED TO MATCH THE SCRAMBLING TRANSFORMATION AND REDUCE RETRIEVAL TIME; A DYNAMIC REORGANIZATION OF PAGES AND THE USE OF INFERENCE MECHANISMS CAN REDUCE THE NUMBER OF PAGE FETCHES AND HANDLE COMPLEX QUERIES WITH MINIMAL STORAGE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 765 175 9/2 12/2
MITRE CORP BEDFORD MASS

A THEORY OF STORAGE SIZING, (U)

JUL 73 59P VOTAW,D. F. , JR;
REPT. NO. MTR-2294
CONTRACT: F19628-72-C-0002
PROJ: AF-572R
MONITOR: ESD TR-72-270

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY DEVICES, DISTRIBUTION THEORY), QUEUEING THEORY, DATA PROCESSING, STOCHASTIC PROCESSES, RANDOM VARIABLES, STATISTICAL ANALYSIS, DIFFERENTIAL EQUATIONS, MATHEMATICAL MODELS (U)

THE RELATIONS BETWEEN THE SIZE OF A STORAGE FACILITY AND ITS CAPABILITY TO PERFORM ITS SERVICE OF STORAGE UNDER A STOCHASTIC LOAD ARE EXPLORED. THE SOLUTIONS THAT ARE DERIVED LEND GUIDANCE TO THE SIZING OF THE VARIOUS MEMORIES AND BUFFERS OF A COMPUTER SYSTEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 765 391 9/2
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB

HIGH DENSITY OPTICAL MEMORY. (U)

DESCRIPTIVE NOTE: ANNUAL REPT., 1 JUL 72-30 JUN 73.
JUL 73 16P
CONTRACT: N00014-67-A-0305-0015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*DATA STORAGE SYSTEMS, OPTICAL EQUIPMENT), (*MEMORY DEVICES, FEASIBILITY STUDIES), POTASSIUM COMPOUNDS, CHLORIDES, LOGIC CIRCUITS, SODIUM COMPOUNDS, FLUORIDES, X RAYS, COLOR CENTERS, ELECTRON IRRADIATION, SODIUM CHLORIDE (U)
IDENTIFIERS: OPTICAL CRYSTAL MEMORIES, OPTICAL STORAGE DEVICES, ACOUSTOOPTICS, INTERACTIONS, POTASSIUM CHLORIDE (U)

THE CONTINUED DEVELOPMENT OF THE PHOTOCHOMIC MEMORY HAS RESULTED IN THE DESIGN AND CONSTRUCTION OF A SECOND GENERATION KCL MEMORY SYSTEM AND AN ENHANCEMENT OF THE PERFORMANCE OF THE ORIGINAL SYSTEM. APPARATUS FOR COLORING MEMORY CRYSTALS BY MEANS OF ELECTRON BOMBARDMENT HAS BEEN DEVELOPED MAKING POSSIBLE THE MATCHING OF CRYSTAL THICKNESS TO THE DEPTH OF FIELD OF THE FOCUSING LENS. STUDIES OF KCL:NACL PROPERTIES INDICATE THAT THERMO-ELECTRIC COOLING UNITS MAY BE USED TO SIMPLIFY THE CRYOSTAT UNITS FOR HOUSING THE CRYSTAL. IN THE IMMEDIATE FUTURE, THE CONTROL LOGIC WILL BE INTEGRATED WITH THE NEW MEMORY. THIS WILL FACILITATE THE STORAGE AND RETRIEVAL OF A LARGE NUMBER OF BITS AND ALLOW INTERFACING THE MEMORY WITH A COMPUTER FOR LONG TERM, HIGH SPEED RELIABILITY TESTS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 765 937 9/2
TORONTO UNIV (ONTARIO) DEPT OF ELECTRICAL ENGINEERING

LOGIC ARRAY USING CHARGE-TRANSFER DEVICES, (U)

SEP 72 2P MOK,T. D. ;SALAMA,C. A. T. ;

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN ELECTRONICS LETTERS, V8 N20, 5 OCT 72.

DESCRIPTORS: (*MEMORY DEVICES, SEMICONDUCTOR DEVICES), SHIFT REGISTERS, LOGIC CIRCUITS, GATES(CIRCUITS), DESIGN, CANADA (U)
IDENTIFIERS: CHARGE COUPLED DEVICES, *SEMICONDUCTOR COMPUTER STORAGE (U)

A LOGIC ARRAY THAT PERFORMS BOTH AND AND OR FUNCTIONS USING CHARGE-TRANSFER DEVICES IS PROPOSED. POTENTIAL BARRIERS ARE USED TO CONTROL THE DIRECTIONALITY OF CHARGE TRANSFER AND PERFORM THE LOGIC FUNCTIONS. THE BASIC OPERATION OF THE DEVICES IS DESCRIBED AND ILLUSTRATED USING 2-PHASE CHARGE-COUPLED DEVICES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 766 279 9/2
SYRACUSE UNIV N Y DEPT OF ELECTRICAL AND COMPUTER ENGINEERING

PARALLEL PROCESSING CHARACTERISTICS AND IMPLEMENTATION OF DATA MANIPULATING FUNCTIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 73 84P GENG,TSE-YUN ;
CONTRACT: F30602-72-C-0281
MONITOR: RADC TR-73-189

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, LOGIC CIRCUITS), SWITCHING CIRCUITS, SHIFT REGISTERS, FUNCTIONS(MATHEMATICS), DESIGN, THEOREMS (U)
IDENTIFIERS: LOGIC DESIGN, *PARALLEL PROCESSORS, ARITHMETIC AND LOGIC UNITS, ASSOCIATIVE STORAGE, *SEQUENTIAL CIRCUITS, ILLIAC 4 COMPUTERS (U)

THE REPORT SHOWS THAT THERE EXISTS A CLASS OF FUNCTIONS, CALLED DATA MANIPULATING FUNCTIONS, IN SEQUENTIAL AS WELL AS PARALLEL PROCESSORS. THE CIRCUITS USED TO ACHIEVE THESE FUNCTIONS CAN BE CONSIDERED TO FORM AN INDEPENDENT FUNCTIONAL BLOCK, CALLED A DATA MANIPULATOR. A BASIC ORGANIZATION APPLICABLE TO BOTH SEQUENTIAL AND PARALLEL PROCESSORS IS THEN SUGGESTED. THE MAIN DEVIATION OF A PARALLEL PROCESSOR ORGANIZATION FROM THE CONVENTIONAL VON NEUMANN ORGANIZATION IS SEEN TO BE IN THE BIS (BIT-SLICE) MANIPULATING FUNCTIONS. A COMPREHENSIVE SET OF BIS MANIPULATING FUNCTIONS (CLASSIFIED IN FOUR CATEGORIES: PERMUTING, REPLICATING, SPACING AND MASKING) IS GIVEN. IN ADDITION, IT IS SHOWN THAT THE DATA MANIPULATOR DESIGNS PRESENTED IN THIS REPORT ARE EXTREMELY FLEXIBLE TO SUIT THE REQUIREMENTS OF VARIOUS PARALLEL PROCESSORS. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 766 517 9/2
LOGICON INC SAN PEDRO CALIF

AN EXAMINATION OF TWO FAULT-TOLERANT ARCHITECTURES, (U)

AUG 73 214P LAURO,JOSEPH A. ;O'BRIEN, FRANK J. ;SWITZER,DAVID K. ;
REPT. NO. CSS-7332-R1410
CONTRACT: F04701-72-C-0408
MONITOR: SAMSO TR-73-273

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPILERS, DESIGN), (*LOGIC CIRCUITS, RELIABILITY), COMPUTER PROGRAMMING, INPUT OUTPUT DEVICES, SHIFT REGISTERS, FAILURE, DETECTION (U)
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, FORTRAN, COMPUTERIZED SIMULATION, *FAULT TOLERANT COMPUTING (U)

TWO FAULT-TOLERANT COMPUTER DESIGNS WERE EXAMINED. FOR EACH DESIGN A FUNCTIONAL SIMULATOR WAS IMPLEMENTED AND AN EXECUTIVE PROGRAM, RECOVERY SOFTWARE, AND APPLICATION PROGRAM WAS CODED. THE MAJOR CONCERN IN THE EXECUTIVE PROGRAM DEVELOPMENT WAS THE HANDLING OF INPUT/OUTPUT AND INTERRUPTS IN THE PRESENCE OF FAULTS. SIMILARLY, THE DEVELOPMENT OF THE RECOVERY SOFTWARE REVEALED THAT THE PRESERVATION OF THE APPLICATION WAS MORE DIFFICULT THAN THE RECOVERY OF THE HARDWARE ITSELF. THE APPLICATION WAS SELECTED FROM THE TITAN 3C FLIGHT PROGRAM. A SIMPLE COMPILER WAS DEVELOPED TO GENERATE THE APPLICATION PROGRAM CODE AND AUTOMATICALLY INSERT ROLLBACK POINTS. THIS APPROACH ELIMINATED ANY CONCERN FOR FAULT TOLERANCE ON THE PART OF THE APPLICATION PROGRAMMER. HOWEVER, A SIGNIFICANT OVERHEAD IN TERMS OF MEMORY SPACE AND EXECUTION TIME DUE TO FAULT TOLERANCE RESULTED. EACH DESIGN WAS EXAMINED AT A FUNCTIONAL LEVEL RELATIVE TO ITS COMPUTATION CAPABILITIES AND EFFECTIVENESS IN PROVIDING FAULT TOLERANCE. WEAK POINTS WERE IDENTIFIED IN EACH DESIGN AND RECOMMENDATIONS FOR CORRECTING THEM WERE PROVIDED. NEITHER DESIGN COMPLETELY HANDLED CATASTROPHIC FAILURES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 766 974 9/2
STANFORD RESEARCH INST MENLO PARK CALIF

A STUDY OF FAULT-TOLERANT COMPUTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. 12 JAN 72-15 MAY 73,
JUL 73 228P NEUMANN,PETER G. ;GOLDBERG,
JACK ;LEVITT,KARL N. ;WENSLEY,JOHN H. ;
CONTRACT: N00014-72-C-0254, ARPA ORDER-1998
PROJ: SRI-1693

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, MAINTENANCE),
(*COMPUTERS, RELIABILITY(ELECTRONICS)), REAL TIME,
MULTIPLE OPERATION, LOGIC CIRCUITS,
FAILURE(ELECTRONICS), FAILURE, COST EFFECTIVENESS,
REDUNDANT COMPONENTS, DESIGN, STATE-OF-THE-ART REVIEWS,
DATA STORAGE SYSTEMS (U)
IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS,
COMPUTERS, MULTIPLE OPERATION, ARITHMETIC AND LOGIC
UNITS, VIRTUAL MEMORIES, COMPUTER SELF MAINTENANCE,
*FAULT TOLERANT COMPUTING, FAULT DETECTION (U)

THE REPORT PRESENTS THE RESULTS OF A STUDY OF FAULT-TOLERANT COMPUTING. EXISTING AND NEW ARCHITECTURAL TECHNIQUES ARE EVALUATED FOR USE IN COST-EFFECTIVE SYSTEMS ATTAINING DESIRED MEASURES OF CORRECTNESS, AVAILABILITY AND RECOVERY. VARIOUS ARCHITECTURES AND APPLICATIONS ARE CONSIDERED. APPENDICES CONTAIN A BRIEF CENSUS OF 35 FAULT-TOLERANT SYSTEMS, AND A CONCISE SURVEY OF 17 REPRESENTATIVE SYSTEMS, AS WELL AS DETAILED RESULTS ON RELIABLE MEMORIES AND ARITHMETIC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 024 9/2
DEFENSE NUCLEAR AGENCY WASHINGTON D C

GENERALIZED INFORMATION RETRIEVAL LANGUAGE (GIRL): COMPUTER PROGRAM (CARD DECK), (U)

SEP 73 1V LONG,JOHN ;

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: AVAILABLE TO NON-U.S. ADDRESSES $219.00/DECK.

DESCRIPTORS: (*COMPUTER PROGRAMMING, INFORMATION RETRIEVAL), PUNCHED CARDS (U)
IDENTIFIERS: GIRL PROGRAMMING LANGUAGE, DATA MANAGEMENT, COBOL, BURROUGHS 2500 COMPUTERS, BURROUGHS 3500 COMPUTERS (U)

INCLUDED ARE 2046 CARDS FOR THE GENERALIZED INFORMATION RETRIEVAL LANGUAGE TO PERMIT THE NON-COMPUTER-ORIENTED PERSON TO ACCESS, SELECT, SORT, PRINT AND SUMMARIZE RECORDS THAT ARE ESTABLISHED ON TAPE, CARDS, OR DISK. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 091 9/5 19/1
HARRY DIAMOND LABS WASHINGTON D C

THIN-FILM HYBRID MICROCIRCUITRY. PART I. BOXCAR CIRCUIT FOR A CURRENT HDL FUSE SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
MAY 73 17P EDWARDS,ADOLPH J. ;
REPT. NO. HDL-TM-73-10
PROJ: DA-1-X-263302-D-212, HDL-635921

UNCLASSIFIED REPORT

DESCRIPTORS: (*INTEGRATED CIRCUITS, SAMPLING), VIDEO SIGNALS, DESIGN, MICROELECTRONICS, PHOTOENGRAVING, FILMS, FUZES(ORDNANCE) (U)
IDENTIFIERS: THIN FILMS, COMPUTER AIDED DESIGN, *HYBRID CIRCUITS, *MICROMINIATURIZATION (U)

A THIN-FILM HYBRID VERSION OF THE BOXCAR CIRCUIT FOR A CURRENT HARRY DIAMOND LABORATORIES FUZE SYSTEM WAS DEVELOPED. A SINGLE CIRCUIT WAS LAID OUT AND A COMPUTER PROGRAM WRITTEN TO GENERATE 4 IDENTICAL CIRCUIT PATTERNS USING A COMPUTER-TAPE DRIVEN PLOTTER. THE RESISTOR-CONDUCTOR PATTERNS WERE PRODUCED BY STANDARD PHOTOLITHOGRAPHIC TECHNIQUES, AND DISCRETE CHIP DEVICES (DIODES, CAPACITORS, AND TRANSISTORS) WERE ATTACHED WITH CONDUCTING EPOXY CEMENT. CONNECTIONS TO THE CHIP DEVICES AND TO LEAD-OUT PINS WERE MADE BY THERMOCOMPRESSION WIRE BONDING TO COMPLETE THE CIRCUIT FABRICATION. PRELIMINARY ELECTRICAL TESTS INDICATED ACCEPTABLE INSERTION LOSSES OF APPROXIMATELY 0.6 DB AND HIGH-FREQUENCY ROLL-OFF POINTS IN THE EXPECTED FREQUENCY RANGE.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 423 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

CERTAIN ALGORITHMS OF ORGANIZATION OF COMPUTER MEMORY DISTRIBUTION, (U)

OCT 73 19P TSULADZE,M. G. ;
REPT. NO. FTD-HT-23-58-74
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF VYCHISLITELNYI TSENTR, EREVAN. TRUDY (USSR) V10 N1 P58-72 1970, BY VICTOR MESENZEFF.

DESCRIPTORS: (*COMPUTER PROGRAMMING, ALGORITHMS), MATHEMATICAL LOGIC, MEMORY DEVICES, CONTROL SEQUENCES, USSR (U)
IDENTIFIERS: TRANSLATIONS (U)

CERTAIN ALGORITHMS OF ORGANIZATION OF COMPUTER MEMORY DISTRIBUTION--TRANSLATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 651 8/7 8/9 13/2 9/2
OHIO STATE UNIV RESEARCH FOUNDATION COLUMBUS

FINITE ELEMENT ANALYSIS OF STRESSES, DEFORMATIONS AND PROGRESSIVE FAILURE OF NON-HOMOGENEOUS FISSURED ROCK - COMPUTER PROGRAMS ON MAGNETIC TAPE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 73 1V SANDHU,RANBIR S. ;
REPT. NO. OSURF-3177-73-3F
CONTRACT: H0210017, ARPA ORDER-1579
PROJ: OSURF-3177

UNCLASSIFIED REPORT
AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED: 7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY; OR 9 TRACK, 800 BPI, ODD PARITY. INCLUDES AD-768 649 (USERS MANUAL), AND AD-768 650 (COMPUTER PROGRAMS).
SUPPLEMENTARY NOTE:

DESCRIPTORS: (*ROCK, MECHANICAL PROPERTIES), (*UNDERGROUND STRUCTURES, STRESSES), (*MAGNETIC TAPE, COMPUTER PROGRAMS), MINING ENGINEERING, FOUNDATIONS(STRUCTURES), CONSTRUCTION, DEFORMATION, ELASTIC PROPERTIES, PLASTIC PROPERTIES, CRACK PROPAGATION, FRACTURE(MECHANICS), FAILURE(MECHANICS) (U)
IDENTIFIERS: FORTRAN, IBM 370/165 COMPUTERS, FINITE ELEMENT ANALYSIS (U)

THE OBJECTIVE OF THIS RESEARCH PROGRAM WAS DEVELOPMENT OF FINITE ELEMENT PROCEDURES FOR PREDICTION OF STRESSES AND DEFORMATIONS IN THE VICINITY OF UNDERGROUND EXCAVATION. THE MAGNETIC TAPE CONTAINS THE COMPUTER PROGRAMS WRITTEN IN FORTRAN FOR AN IBM 370/165 COMPUTER. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 768 978 9/2
SYRACUSE UNIV N Y

ASSOCIATIVE COMPUTATIONS OF SOME MATHEMATICAL PROBLEMS, (U)

AUG 73 85P CHENG,WEI-TIH ;FENG,TSE-YUN ;

CONTRACT: F30602-72-C-0281
MONITOR: RADC TR-73-229

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMMING, NUMERICAL ANALYSIS), MEMORY DEVICES, INTEGRAL TRANSFORMS, FOURIER ANALYSIS, PARTIAL DIFFERENTIAL EQUATIONS, MATRICES(MATHEMATICS), LOGIC CIRCUITS, MULTIPLE OPERATION, SEARCH THEORY (U)
IDENTIFIERS: ASSOCIATIVE STORAGE, FAST FOURIER TRANSFORM, FOURIER TRANSFORMATION, ARITHMETIC AND LOGIC UNITS, PARALLEL PROCESSORS, ASSOCIATIVE PROCESSORS, COMPUTATION (U)

ASSOCIATIVE PROCESSING PROVIDES A NATURAL COMBINATION OF ARITHMETIC-LOGIC AND SEARCH-RETRIEVAL CAPABILITIES WHICH IS A DESIRED CHARACTERISTIC FOR MANY MATHEMATICAL PROBLEMS. IN THIS REPORT AN ASSOCIATIVE PROCESSOR WHICH HAS A DATA MANIPULATOR AS A SEPARATE FUNCTIONAL UNIT FOR PREPARING OPERANDS IS FIRST DESCRIBED. IN ORDER TO EVALUATE THE EFFECTIVENESS OF SUCH A SYSTEM, A NUMBER OF FUNDAMENTAL MATHEMATICAL PROBLEMS WHICH ARE USEFUL FOR A BROAD RANGE OF APPLICATIONS ARE STUDIED. THESE ARE, AMONG OTHERS, FAST FOURIER TRANSFORM, PARTIAL DIFFERENTIAL EQUATIONS, AND MATRIX OPERATIONS. NEW AND MODIFIED ALGORITHMS ARE DEVELOPED. INEFFICIENT WORD-SEQUENTIAL LOADING AND PROCESSING ARE MINIMIZED AND REDUNDANT STORAGE IS ELIMINATED. THE EXECUTION TIMES FOR SOLVING THESE MATHEMATICAL PROBLEMS UNDER VARIOUS CONDITIONS ARE COMPUTED, ANALYZED, AND COMPARED WITH THOSE REQUIRED BY TWO OTHER ASSOCIATIVE ORGANIZATIONS. IT IS SHOWN THAT WITH THE SIMPLEST ARITHMETIC-LOGIC UNITS AND BIS (BIT-SLICE)-SEQUENTIAL DATA MANIPULATING CAPABILITY ASSUMED IN THE PROPOSED ORGANIZATION, THE IMPROVEMENTS IN SYSTEM PERFORMANCE AND STORAGE REQUIREMENTS ARE SIGNIFICANTLY AND CONSISTENTLY BETTER THAN THOSE OF EXISTING TECHNIQUES. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 770 552 9/2
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

INTERCONNECTIONS FOR PARALLEL MEMORIES TO UNSCRAMBLE P-ORDERED VECTORS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. NO. 74,
MAY 73 54P SWANSON,ROGER C. ;
REPT. NO. SU-SEL-73-032, STAN-CS-73-388
CONTRACT: N00014-67-A-0112-0044, NSF-GJ-1180
PROJ: AF-6970, AF-6960

UNCLASSIFIED REPORT

DESCRIPTORS: *PARALLEL PROCESSORS, *MEMORY DEVICES, LOGIC CIRCUITS, CIRCUIT INTERCONNECTIONS, MODULAR CONSTRUCTION, MATHEMATICAL LOGIC, THEOREMS (U)
IDENTIFIERS: ILLIAC 4 COMPUTERS, *LOGIC DESIGN (U)

SEVERAL METHODS ARE BEING CONSIDERED FOR STORING ARRAYS IN A PARALLEL MEMORY SYSTEM SO THAT VARIOUS USEFUL PARTITIONS OF AN ARRAY CAN BE FETCHED FROM THE MEMORY WITH A SINGLE ACCESS. SOME OF THESE METHODS FETCH VECTORS IN AN ORDER SCRAMBLED FROM THAT REQUIRED FOR A COMPUTATION. THE PAPER CONSIDERS THE PROBLEM OF UNSCRAMBLING SUCH VECTORS WHEN THE VECTORS BELONG TO A CLASS CALLED P-ORDERED VECTORS AND THE MEMORY SYSTEM CONSISTS OF A PRIME NUMBER OF MODULES. PAIRS OF INTERCONNECTIONS ARE DESCRIBED THAT CAN UNSCRAMBLE P-ORDERED VECTORS IN A NUMBER OF STEPS THAT GROW AS THE SQUARE ROOT OF THE NUMBER OF MEMORIES. LOWER AND UPPER BOUNDS ARE GIVEN FOR THE NUMBER OF STEPS TO UNSCRAMBLE THE WORST CASE VECTOR. THE UPPER BOUND CALCULATION THAT IS DERIVED ALSO PROVIDES AN UPPER BOUND ON THE MINIMUM DIAMETER OF A STAR POLYGON WITH A FIXED NUMBER OF NODES AND TWO INTERCONNECTIONS. AN ALGORITHM IS GIVEN THAT HAS PRODUCED OPTIMAL PAIRS OF INTERCONNECTIONS FOR ALL SIZES OF MEMORY THAT HAVE BEEN TRIED. THE ALGORITHM APPEARS TO FIND OPTIMAL PAIRS FOR ALL MEMORY SIZES, BUT NO PROOF HAS YET BEEN FOUND. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 175 9/2 6/12
MICHIGAN UNIV ANN ARBOR DEPT OF ELECTRICAL ENGINEERING

FEASIBILITY OF EXECUTING MIMS ON INTERDATA 80. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 73 43P BAUER,MICHAEL F. ;IRANI,
KEKI B. ;
CONTRACT: F30602-73-C-0001
PROJ: AF-5581
TASK: 558102
MONITOR: RADC TR-73-301

UNCLASSIFIED REPORT

DESCRIPTORS: *INFORMATION PROCESSING, *MINICOMPUTERS, COMPUTER PROGRAMMING, FORTRAN, ALGORITHMS, MEDICAL SERVICES, FEASIBILITY STUDIES (U)
IDENTIFIERS: INTERDATA 80 MINICOMPUTERS, CDC 6500 COMPUTERS, CDC 6600 COMPUTERS, MIMS(MEDICAL INFORMATION MANAGEMENT SYSTEM), MEDICAL INFORMATION MANAGEMENT SYSTEM, FILE STRUCTURES, COMPUTER STORAGE MANAGEMENT (U)

THE REPORT EXAMINES THE FEASIBILITY OF IMPLEMENTING LARGE INFORMATION MANAGEMENT SYSTEM ON MINI-COMPUTERS. THE MEDICAL INFORMATION MANAGEMENT SYSTEM AND THE INTERDATA 80 MINI-COMPUTER WERE SELECTED AS BEING REPRESENTATIVE SYSTEMS. THE FORTRAN PROGRAMS CURRENTLY BEING USED IN MIMS ARE VIEWED IN LIGHT OF THE LIMITATIONS OF THE INTERDATA MACHINE, AND IT IS DISCOVERED THAT IT WILL BE IMPOSSIBLE TO MAKE THEM WORK WITHOUT LARGE AND TIME-CONSUMING ALTERATIONS. IT IS CONCLUDED THAT IT IS POSSIBLE TO IMPLEMENT MIMS ON THE NEW MACHINE, BUT IT WILL BE MORE PRACTICAL TO DO SO BY WRITING NEW PROGRAMS, RATHER THAN MAKING DO WITH THE OLD. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 284 9/2
BROWN UNIV PROVIDENCE R I CENTER FOR COMPUTER AND INFORMATION SCIENCES

AN INTERACTIVE SOFTWARE ENGINEERING TOOL FOR MEMORY MANAGEMENT AND USER PROGRAM EVALUATION, (U)

NOV 73 24P MILLBRANDT,WOLFGANG W. ; RODRIGUEZ-ROSELL,JUAN ;
CONTRACT: N00014-67-A-0191-0023, NSF-GJ-28401

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMMING, MEMORY DEVICES, MONITORING, FORTRAN (U)
IDENTIFIERS: *VIRTUAL MEMORY, *COMPUTER STORAGE MANAGEMENT, INTERACTIVE COMPUTER GRAPHICS, IBM 360/67 COMPUTERS (U)

AS THE USE OF VIRTUAL MEMORY BECOMES MORE AND MORE ACCEPTED, THE PROBLEM OF EFFECTIVE STORAGE MANAGEMENT BECOMES MORE AND MORE IMPORTANT. TO DATE MOST EFFORTS TO OPTIMIZE THE USE OF MEMORY HAVE BEEN DIRECTED AT DEVISING MEMORY MANAGEMENT STRATEGIES AT THE OPERATING SYSTEM LEVEL THAT MINIMIZE THE NUMBER OF PAGE FAULTS. LITTLE EFFORT HAS BEEN MADE TO PROVIDE THE PROGRAMMER WITH SUITABLE TOOLS FOR MAKING HIS PROGRAMS 'MORE LOCAL'. TO FILL THIS NEED THE BROWN UNIVERSITY DISPLAY FOR WORKING SET REFERENCES WAS DEVELOPED, ENABLING THE PROGRAMMER TO DIRECTLY MONITOR THE PAGE REFERENCING BEHAVIOR OF HIS MODULES. THIS INTERACTIVE GRAPHICS MEASUREMENT SYSTEM USES A SATELLITE PROCESSOR TO DISPLAY USER PROGRAM MEMORY REFERENCES AND WORKING SET PARAMETERS. THE SYSTEM AND SEVERAL PARAMETERS USED TO EVALUATE PROGRAM MEMORY UTILIZATION ARE DISCUSSED. PRACTICAL PROGRAMMING GUIDELINES AND PACKAGING TECHNIQUES TO IMPROVE MEMORY USAGE IN A VIRTUAL MEMORY ENVIRONMENT ARE PRESENTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 428 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE PROJECT MAC

PROJECT MAC PROGRESS REPORT X, JULY 1972-
JUNE 1973, (U)

DEC 73 154P FREDKIN,E. ;
CONTRACT: N00014-70-A-0362-0001, N00014-70-A-0362-
0006

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT AD-756 689.

DESCRIPTORS: *COMPUTER PROGRAMMING, *DATA
PROCESSING, *ARTIFICIAL INTELLIGENCE, PROGRAMMING
LANGUAGES, SYSTEMS ENGINEERING, TIME SHARING,
MULTIPLE OPERATION, AUTOMATA, REAL TIME,
INFORMATION SYSTEMS, GRAPHICS (U)
IDENTIFIERS: MAC PROJECT, MULTICS SYSTEM,
INTERACTIVE COMPUTER GRAPHICS, *DATA PROCESSING
SYSTEMS, COMPUTER NETWORKS, COMPUTER STORAGE
MANAGEMENT, AUTOMATA THEORY (U)

;CONTENTS: COMPUTER SYSTEMS RESEARCH;
PROGRAMMING TECHNOLOGY; AUTOMATIC PROGRAMMING
DIVISION; OTHER RESEARCH; PROJECT MAC
PUBLICATIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 545 9/2
WESTINGHOUSE RESEARCH LABS PITTSBURGH PA

MOBILE CENTRAL SWITCHES (AN ELECTRON-
LITHOGRAPHY APPLICATION). (U)

DESCRIPTIVE NOTE: FINAL REPT. 9 JUN 69-30 JUN 72,
SEP 73 300P MALMBERG,PAUL R. ;
O'KEEFFE,TERRENCE W. ;SOPIRA,MICHAEL M. ;
SCALA,LUCIANO C. ;
REPT. NO. 6F6-LSMEM-R1
CONTRACT: F30602-69-C-0280
PROJ: AF-4519, AF-6523
TASK: 451903, 652301
MONITOR: RADC TR-73-275

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, *LOGIC CIRCUITS,
*FABRICATION, LITHOGRAPHY, ELECTRON BEAMS,
INTEGRATED CIRCUITS (U)
IDENTIFIERS: *SEMICONDUCTOR COMPUTER STORAGE,
ELECTRON BEAM LITHOGRAPHY, *RANDOM ACCESS COMPUTER
STORAGE (U)

MAXIMUM DENSITY CIRCUIT FABRICATION TECHNIQUES WERE APPLIED TO THE FABRICATION OF A 1024-BIT RANDOM ACCESS MEMORY BASED ON A 2-TRANSISTOR VERSATILE MEMORY/CROSSPOINT SWITCH CELL OF RADC DESIGN. ARRANGED AS A 32 WORD BY 32 BIT MATRIX OF CELLS ON 20 X 24 MICRON CENTERS, THE MEMORY CHIP DESIGN INCLUDES ADDRESS DECODING FOR SELECTIVE ENABLING OF THREE CONTROL BUSSES PER WORD TO PERMIT OPERATION OF THE DEVICE AS A RANDOM ACCESS MEMORY, ASSOCIATIVE MEMORY, CROSSPOINT SWITCH, OR SAMPLE AND HOLD SWITCH. A TWO MICRON MINIMUM GEOMETRY DESIGN RULE WAS FOLLOWED. FOURTEEN MEMORY CIRCUITS AND 4 TEST CIRCUITS WERE COMPLETED AND THE BEST UNITS WERE MOUNTED ON CERAMIC CARRIERS WITH 50-PIN EDGE CONNECTORS. STATIC AND DYNAMIC TESTS OF THESE DEVICES SHOWED OPERATING TRANSISTORS, DECODERS, AND A MEMORY WORD USED FOR RESET OF DATA LINES. ELECTRON BEAM FABRICATION TECHNIQUES WERE ADVANCED DURING THE PROGRAM. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 771 793 9/2
INFORMATICS INC ROCKVILLE MD

INTELLIGENCE SYSTEM DESIGNER'S MEMORY EVALUATION PROGRAM. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-AUG 73, NOV 73 131P SAVAS,MARY ANN ;CORLEY, STEVEN ;
REPT. NO. TR-73-1561-1
CONTRACT: F30602-72-C-0380
MONITOR: RADC TR-73-328

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, *COST EFFECTIVENESS, *COMPUTERIZED SIMULATION, *COMPUTER PROGRAMMING, INSTRUCTION MANUALS, PERFORMANCE(ENGINEERING), FORTRAN (U)
IDENTIFIERS: PERFORMANCE EVALUATION, HIS 635 COMPUTERS, GESIM PROGRAMMING LANGUAGE (U)

THE SELECTION OF STORAGE EQUIPMENT IS AN INTEGRAL PART OF INTELLIGENCE SYSTEMS DESIGN. INTELLIGENCE DATA HANDLING SYSTEMS ARE CHARACTERIZED BY LARGE FILES WHOSE ELEMENTS ARE CONSTANTLY ACCESSED, UPDATED, AND/OR DELETED BY A NUMBER OF PROCESSES AND PROCEDURES. TOO OFTEN, THE MINIMUM COST OF A SYSTEM IS NOT ATTAINED DUE TO THE DIFFICULTIES OF COMPARING THE COST AND/OR TECHNICAL PERFORMANCE OF VARIOUS STORAGE DEVICES. THE MEMORY EVALUATION PROGRAM HAS BEEN DESIGNED TO ASSIST IN THE DETERMINATION OF THE BEST OR, IN SOME CASES, A FEASIBLE SOLUTION TO MEET STORAGE REQUIREMENTS. IT IS A SIMULATION PROGRAM BASED UPON MATHEMATICALLY-SOUND PRINCIPLES THAT CLOSELY PARALLEL THE PROCEDURES USED BY LARGE-SCALE COMPUTERS TO PERFORM INPUT/OUTPUT OPERATIONS WITH STORAGE DEVICES. THEREFORE, IT IS POSSIBLE TO STUDY MORE ALTERNATIVE SOLUTIONS AND TO HAVE MORE PERFORMANCE DATA AVAILABLE WITH WHICH TO PERFORM COMPARATIVE ANALYSES. ALGORITHMS FOR EVALUATING MAGNETIC TAPE DEVICES, AND DIRECT ACCESS STORAGE DEVICES, HAVE BEEN INCLUDED IN THE SIMULATION PROGRAMS. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 018 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

THE POSSIBILITY OF CONSTRUCTION OF AN ALGORITHMIC GENERAL-PURPOSE HYBRID COMPUTER, (U)

NOV 73 14P PUKHOV,G. E. ;
REPT. NO. FTD-HT-23-319-74
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF AKADEMIYA NAUK URSR, KIEV. INSTITUT KIBERNETIKI SEMINAR PO METODAM MATEMATICHESKOGO MODELIROVANIYA I TEORII ELEKTRICHESKIKH TSEPEI. TRUDY SEMINARA, N9 P3-9 1971. BY FRANK C. VAUGHN.

DESCRIPTORS: *HYBRID COMPUTERS, ALGORITHMS, MEMORY DEVICES, LOGIC CIRCUITS, PARTIAL DIFFERENTIAL EQUATIONS, MATRICES(MATHEMATICS), TRANSLATIONS, USSR (U)

IN THE PRESENT WORK AN ATTEMPT IS MADE TO EXAMINE CERTAIN PROBLEMS RELATIVE TO THE ALGORITHMIC GENERAL-PURPOSE HYBRID COMPUTER WHICH HAS THE FOLLOWING COMPONENTS: A COMMON DIGITAL MEMORY, A COMMON CONTROL UNIT AND TWO ARITHMETIC DEVICES, THE FIRST OF WHICH IS DIGITAL AND THE SECOND IS A CODE-CONTROLLED ALGEBRAIC CONVERTER OF CONTINUOUS ELECTRICAL VOLTAGES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 165 8/7 9/2
SYSTEMS SCIENCE AND SOFTWARE LA JOLLA CALIF

THE FINITE ELEMENT COMPUTER CODE 3NONLIN'. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
MAY 73 1V BALIGH,MOHSEN M. ;
REPT. NO. SSS-R-73-1658-PC
CONTRACT: H0220047

UNCLASSIFIED REPORT
PUNCHED CARDS $200.00/DECK OF 1597 CARDS.
SUPPLEMENTARY NOTE: PRICE INCLUDES TECHNICAL REPORT AD-764 099. SPONSORED IN PART BY ADVANCED RESEARCH PROJECTS AGENCY, ARLINGTON, VA.

DESCRIPTORS: *ROCK MECHANICS, *COMPUTER PROGRAMS, *PUNCHED CARDS, COMPRESSIVE PROPERTIES, TEST METHODS, COMPUTERIZED SIMULATION, CRACKS, MINING ENGINEERING, TRIAXIAL STRESSES, LOAD(FORCES), PLASTIC FLOW, NUMERICAL ANALYSISS (U)
IDENTIFIERS: NONLIN COMPUTER CODE, FINITE ELEMENT ANALYSIS, COMPRESSION TESTS (U)

THE PROGRAM WAS DEVELOPED UNDER RESEARCH CONTRACT H0220047 'A NUMERICAL STUDY OF UNIAXIAL AND TRIAXIAL ROCK COMPRESSION TESTS.' THE FINAL TECHNICAL REPORT FROM THIS CONTRACT, WHICH DESCRIBES THE USE OF THIS PROGRAM, IS CURRENTLY AVAILABLE FROM NTIS UNDER AD-764 099 AT A COST OF $3.00 FOR PAPER COPY OR $1.45 FOR MICROFICHE. TO ACCOMPLISH THE STUDY, THE TWO-DIMENSIONAL, QUASI-STATIC FINITE ELEMENT CODE NONLIN WAS DEVELOPED TO SOLVE PROBLEMS INVOLVING NONLINEAR, NONHOMOGENEOUS, AND ANISOTROPIC MATERIALS. NONLINEARITIES ARE STUDIED BY MEANS OF THE INCREMENTAL OR THE ITERATION TECHNIQUES, OR A COMBINATION OF THE TWO. TO ACHIEVE FAST CONVERGENCE USING THE STIFFNESS PERTURBATION TECHNIQUE, NEW ITERATION SCHEME WERE DEVELOPED WHICH MADE THE SOLUTION OF A WIDER CLASS OF PROBLEMS POSSIBLE. DISCONTINUITIES IN DISPLACEMENTS THAT ARISE AT INTERFACES OR AT JOINTS AND CRACKS IN ROCKS WERE POSSIBLE TO ANALYZE AFTER A SPECIAL ELEMENT, WAS DEVELOPED AND INCORPORATED IN THE CODE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 410 9/2
DEFENSE INTELLIGENCE AGENCY WASHINGTON D C

MACHINE INDEPENDENT DATA MANAGEMENT SYSTEM (MIDMS) SYSTEM TAPE. (U)

AUG 73 1V
REPT. NO. DIA-U-065

UNCLASSIFIED REPORT
AVAILABILITY: FOREIGN SALES SUBJECT TO NEGOTIATION. SPECIFY TAKE RECORDING MODE DESIRED: 7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY; OR 9 TRACK, 800 BPI, ODD PARITY.

DESCRIPTORS: *COMPUTER PROGRAMMING, *DATA MANAGEMENT, *MAGNETIC TAPE, INFORMATION RETRIEVAL, MEMORY DEVICES (U)
IDENTIFIERS: *MIDMS(MACHINE INDEPENDENT DATA MANAGEMENT SYSTEM), MACHINE INDEPENDENT DATA MANAGEMENT SYSTEM, *DATA MANAGEMENT SYSTEMS (U)

THIS 9-TRACK, 800 BPI, NON-LABELED TAPE CONTAINS ALL THE SOURCE, OBJECT PROGRAMS AND PROCEDURES OF THE MACHINE INDEPENDENT DATA MANAGEMENT SYSTEM (MIDMS) ALONG WITH THE SYSTEM'S LOAD MODULES, EXECUTABLE ON AN IBM 360/40G OR LARGER MACHINE, UNDER A PCP, MVT OR MFT-II OPERATING SYSTEM CONFIGURATION. IT REQUIRES A MINIMUM OF 128K BYTES OF CORE WITH PCP, AND 256K BYTES WITH MVT OR MFT-II OPERATING SYSTEMS, AND CAN USE ANY INPUT/OUTPUT DEVICE SUPPORTED BY THE OPERATING SYSTEM. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 415 9/2
CALIFORNIA UNIV LOS ANGELES CALIF DEPT OF COMPUTER SCIENCE

MEMORY-USE ESTIMATOR FUNCTION OF A PROGRAM EXECUTING IN PAGING ENVIRONMENT, (U)

73 10P RAO,JAI R. ;
CONTRACT: AF-AFOSR-2384-72
PROJ: AF-9769
TASK: 976902
MONITOR: AFOSR TR-74-0010

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN THE PROCEEDINGS ON TEXAS CONFERENCE ON COMPUTING SYSTEMS (2ND), P15-1--15-7, 12-13 NOV 73.
SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH THE HOLMES AND NARVER, INC., ANAHEIM, CALIF.

DESCRIPTORS: *COMPUTER PROGRAMMING, *MEMORY DEVICES, ALLOCATIONS, ESTIMATES (U)
IDENTIFIERS: PAGING, PAGED ENVIRONMENTS (U)

ATTEMPTS HAVE BEEN MADE THROUGH SIMULATION TO STUDY PROGRAM EXECUTION IN A PAGING ENVIRONMENT. HEREIN, THE AUTHOR DEVELOPS AN ANALYTIC MODEL, MEMORY-USE ESTIMATOR FUNCTIONS S(X,V), WHICH IS A FUNCTION OF INSTRUCTIONS EXECUTED X AND PAGE SIZE V IN WORDS; S(X,V) ADEQUATELY DESCRIBES PAGE DEMAND OF A PROGRAM IN EXECUTION. PROPERTIES OF THIS FUNCTION ARE DISCUSSED AND COMPARED WITH SOME PREVIOUS STUDIES. THE MEMORY-USE ESTIMATOR FUNCTION CAN BE USED TO DETERMINE THE NUMBER OF PAGES A PROGRAM WOULD USE DURING A GIVEN EXECUTION TIME SLICE. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 485 9/2
NAVAL ORDNANCE LAB WHITE OAK MD

PROGRESS TOWARD THE CROSSTIE MEMORY, (U)

OCT 73 60P SCHWEE,LEONARD J. ;IRONS, HENRY R. ;KRALL,ALBERT D. ;ANDERSON,WALLACE E. ;WATSON,J. KENNETH ;
REPT. NO. NOLTR-73-185
PROJ: MAT-03L-000/ZF61-512, NOL-824/RR011-02
TASK: MAT-03L-000/ZF61-512-001, NOL-824/RR011-02-02

UNCLASSIFIED REPORT

DESCRIPTORS: *THIN FILM STORAGE DEVICES, *SHIFT REGISTERS, *RANDOM ACCESS COMPUTER STORAGE, MAGNETIC DOMAINS, DOMAIN WALLS, THIN FILMS, MAGNETIC MATERIALS, MAGNETIC RESONANCE, ELECTRIC CURRENTS, PERFORMANCE(ENGINEERING) (U)
IDENTIFIERS: BORAM(BLOCK ORIENTED RANDOM ACCESS MEMORIES), BLOCK ORIENTED RANDOM ACCESS MEMORIES, *MAGNETIC FILM MEMORIES, MAGNETIC BUBBLE DOMAINS, MAGNETORESISTIVITY (U)

PROGRESS TOWARD A MAGNETIC SERIAL ACCESS MEMORY WHICH STORES INFORMATION IN DOMAIN WALLS OF A MAGNETIC THIN FILM IS REPORTED. CALLED THE CROSSTIE MEMORY, IT REPRESENTS A RADICAL DEPARTURE FROM PREVIOUS TECHNIQUES IN WHICH THE INFORMATION IS STORED IN DOMAINS RATHER THAN WALLS. THE CROSSTIE MEMORY IS INTENDED FOR USE AS A BLOCK ORIENTED RANDOM ACCESS MEMORY (BORAM) OR FAST AUXILIARY MEMORY (FAM). THE ADVANTAGES OF THE CROSSTIE APPROACH ARE SPEED, LOW POWER, HIGH BIT DENSITY, NONVOLATILITY, A WIDE TEMPERATURE OPERATING RANGE, LOW COST, AND AVAILABLE TECHNOLOGY. THE REPORT SUMMARIZES THE BACKGROUND KNOWLEDGE NECESSARY FOR THE DESIGN OF SUCH A MEMORY. THIS INCLUDES EXPERIMENTS ON STABILITY CONDITIONS, MOBILITY, DYNAMIC EFFECTS, PROPAGATION, AND DETECTION. THE CROSSTIE METHOD APPEARS COMPLETELY FEASIBLE AND SEVERAL OPTIONS ARE POSSIBLE FOR ITS ULTIMATE EMBODIMENT.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 492 9/2
HARVARD UNIV CAMBRIDGE MASS

RESEARCH ANALYSIS OF OPERATING SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAY 70-30 JUN 73,
OCT 73 121P BUZEN,J. P. ;GAGLIARDI,U.
O. ;
CONTRACT: F19628-70-C-0217
PROJ: AF-2801
TASK: 280102
MONITOR: ESD TR-73-274

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMMING,
MULTIPROGRAMMING, MATHEMATICAL MODELS, STOCHASTIC
PROCESSES, DATA STORAGE SYSTEMS, QUEUEING THEORY,
ALGORITHMS (U)
IDENTIFIERS: *OPERATING SYSTEMS(COMPUTERS),
VIRTUAL MEMORY, COMPUTER STORAGE MANAGEMENT,
HIST COMPUTER PROGRAM, PDP-10 COMPUTERS,
PERFORMANCE EVALUATION, COMPUTER PRIVACY (U)

SUMMARY REPORTS OF OPERATING SYSTEMS RESEARCH
PERFORMED BY CONTRACT PERSONNEL ARE PRESENTED.
RESEARCH OVERVIEWS, BRIEF SUMMARIES OF EXISTING
PAPERS, AND REPRINTS OF SEVERAL PREVIOUSLY PUBLISHED
ARTICLES ARE INCLUDED. THE RESEARCH IS DIVIDED
ROUGHLY INTO FOUR AREAS: SYSTEM PERFORMANCE
MODELS, PROGRAM ADDRESSING BEHAVIOR, VIRTUAL
MACHINES, AND DATA BASE PRIVACY AND SECURITY.
(MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 601 9/2
FEDERAL COBOL COMPILER TESTING SERVICE WASHINGTON D C

COBOL COMPILER VALIDATION SYSTEM, MAGNETIC TAPE VERSION 6.0. (U)

OCT 73 1V
REPT. NO. FCCTS-01

UNCLASSIFIED REPORT
AVAILABILITY: FOREIGN SALES SUBJECT TO NEGOTIATION. SPECIFY TAKE RECORDING MODE DESIRED: 7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY; OR 9 TRACK, 800 BPI, ODD PARITY.
SUPPLEMENTARY NOTE: PRICE INCLUDES USERS GUIDE, AD-772 600.

DESCRIPTORS: *PROGRAMMING LANGUAGES, *COMPILERS, *VALIDATION, *MAGNETIC TAPE (U)
IDENTIFIERS: *COBOL (U)

THE COBOL VALIDATION SYSTEM IS USED TO VALIDATE COBOL COMPILERS AND TO ENSURE THEIR CONFORMANCE TO THE FEDERAL STANDARD AS PRESCRIBED IN FIPS-PUB-21. THE SYSTEM CONSISTS OF A COMPREHENSIVE SET OF AUDIT ROUTINES, THEIR RELATED DATA, AND AN EXECUTIVE ROUTINE WHICH PREPARES THE AUDIT ROUTINES FOR COMPILATION IN A PARTICULAR HARDWARE/OPERATING SYSTEM ENVIRONMENT. EACH AUDIT ROUTINE IS A COBOL PROGRAM WHICH INCLUDES SEVERAL TESTS AND SUPPORTING PROCEDURES INDICATING THE RESULT OF THE TESTS. THE PAPER CONTAINS THE MAGNETIC TAPE FOR THE COBOL VALIDATION SYSTEM. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 630 9/2
BROWN UNIV PROVIDENCE R I DIV OF APPLIED MATHEMATICS

THE OPTIMAL CHOICE OF WINDOW SIZES FOR WORKING SET DISPATCHING, (U)

MAY 73 34P HENDERSON,GREG ;RODRIGUEZ-ROSELL,JUAN ;
CONTRACT: N00014-67-A-0191-0026

UNCLASSIFIED REPORT

DESCRIPTORS: *CONTROL SEQUENCES, *COMPILERS, DATA PROCESSING, MEMORY DEVICES, COMPUTATIONS, TIME SHARING (U)
IDENTIFIERS: FAULT TOLERANT COMPUTING (U)

THE CONCEPT OF VARYING WINDOW SIZE IN A WORKING SET DISPATCHER TO CONTROL WORKING SET SIZE AND NUMBER OF PAGE FAULTS IS EXAMINED. A SPACE-TIME COST EQUATION IS DEVELOPED AND USED TO COMPARE DIFFERENT DISPATCHING ALGORITHMS AND DIFFERENT TYPES OF SECONDARY STORAGE BASED ON THE SIMULATED EXECUTION OF REAL PROGRAMS. A GENERAL APPROACH IS INDICATED FOR STUDYING THE RELATIVE MERIT OF DIFFERENT DISPATCHING ALGORITHMS AND THEIR INTERACTION WITH DIFFERENT HARDWARE CONFIGURATIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 772 808 9/2
MITRE CORP BEDFORD MASS

DESIGN OF A SECURITY KERNEL FOR THE PDP-11/45. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 73 79P SCHILLER,W. L. ;
REPT. NO. MTR-2709
CONTRACT: F19628-73-C-0001
PROJ: AF-5228
MONITOR: ESD TR-73-294

UNCLASSIFIED REPORT

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *SECURITY, *COMPUTER PROGRAMMING, MEMORY DEVICES, INPUT OUTPUT DEVICES (U)
IDENTIFIERS: PDP-11/45 COMPUTERS, COMPUTER SECURITY, DESIGN (U)

THE PAPER PRESENTS THE DESIGN OF A KERNEL FOR SECURE COMPUTER SYSTEMS TO BE BUILT ON THE DIGITAL EQUIPMENT CORPORATION PDP-11/45. THE DESIGN APPLIES A GENERAL PURPOSE MATHEMATICAL MODEL OF SECURE COMPUTER SYSTEMS TO AN OFF-THE-SHELF COMPUTER. THE KERNEL DESIGN IS INTENDED TO SUPPORT SYSTEMS OF LIMITED GENERALITY, RATHER THAN A GENERAL PURPOSE SYSTEM. THE INITIAL SYSTEMS TO BE BUILT ON THE 11/45 WILL BE A FRONT-END (COMMUNICATIONS) PROCESSOR FOR A SECURE CENTRAL COMPUTER AND A QUERY SYSTEM FOR A SECURE MULTILEVEL DATA BASE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 773 233 5/9 9/2
ASSISTANT SECRETARY OF DEFENSE (MANPOWER AND RESERVE AFFAIRS) WASHINGTON D C

COMPREHENSIVE OCCUPATIONAL DATA ANALYSIS PROGRAM (CODAP), (U)

74 1V CANTER,RALPH ;MILLER,J. P.
;
REPT. NO. OSAD/MRA-CODAP-73

UNCLASSIFIED REPORT
AVAILABILITY: AVAILABLE FROM NTIS $200.00. SPECIFY TAPE RECORDING MODE DESIRED: 9 TRACK, 800 BPI, ODD PARITY ONLY. COMPUTER PRODUCTS CATALOG DATA SHEET, ANALYSTS GUIDE, USERS GUIDE, SYSTEMS MAINTENANCE GUIDE, EXECUTIVES OVERVIEW GUIDE, AND CODAP CARD DECK INCLUDED. NO COPIES FROM DDC.

DESCRIPTORS: *MAGNETIC TAPE, *JOB ANALYSIS, DATA PROCESSING, INPUT, STATISTICAL ANALYSIS (U)
IDENTIFIERS: CODAP COMPUTER PROGRAM (U)

CODAP IS A SERIES OF COMPUTER PROGRAMS FOR OCCUPATIONAL ANALYSIS WHICH: PERMIT THE TRANSFORMATION OF JOB DATA INTO MACHINE INPUT FORM; ALLOW CERTAIN MATHEMATICAL AND SUMMARY PROCESSES TO OCCUR; AND PRESENT REPORTS RELATIVE TO JOB ORGANIZATION AND STATISTICAL INFORMATION RELATED TO DEFINED JOB AREAS. THE EXPORT VERSION OF CODAP IS CONTAINED ON ONE REEL OF MAGNETIC TAPE. IT PRODUCES A SINGLE SHEET OF INSTALLATION INSTRUCTIONS AND A PUNCHED DECK CONTAINING THESE INSTRUCTIONS. THE TAPE CONTAINS DETAILED INSTRUCTIONS AND USER JOB STREAM FOR INSTALLATION, PLUS CERTAIN MODULES, CODAP EXECUTION PROCEDURES, AND SELECTED UTILITY PROCEDURES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 773 963 9/2
EVANS AND SUTHERLAND COMPUTER CORP SALT LAKE CITY UTAH

A CHARACTERIZATION OF TEN HIDDEN-SURFACE ALGORITHMS. (U)

DESCRIPTIVE NOTE: REPT. FOR APR 72-MAR 73, DEC 73 118P SUTHERLAND,IVAN E. ;SPROULL, ROBERT F. ;SCHUMACKER,ROBERT A. ;
CONTRACT: N00014-72-C-0346
PROJ: NR-049-333

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER GRAPHICS, MEMORY DEVICES, COMPUTATIONS, SORTING, COMPUTER PROGRAMMING, ALGORITHMS (U)
IDENTIFIERS: IMAGE PROCESSING, CONVEX POLYGONS (U)

THE PAPER ASSERTS THAT THE HIDDEN-SURFACE PROBLEM IS MAINLY ONE OF SORTING. THE VARIOUS SURFACES OF AN OBJECT TO BE SHOWN IN HIDDEN-SURFACE OR HIDDEN-LINE FORM MUST BE SORTED TO FIND OUT WHICH ONES ARE VISIBLE AT VARIOUS PLACES ON THE SCREEN. SURFACES MAY BE SORTED BY LATERAL POSITION IN THE PICTURE (XY), BY DEPTH (Z), OR BY OTHER CRITERIA. THE PAPER SHOWS THAT THE ORDER OF SORTING AND THE TYPES OF SORTING USED FORM DIFFERENCES AMONG THE EXISTING HIDDEN-SURFACE ALGORITHMS. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 776 028 9/2
RAND CORP SANTA MONICA CALIF

A COMPUTER CENTRALIZATION COST MODEL FOR CONCEPTUAL DESIGN, (U)

SEP 73 59P SEALS,EUGENE ;DREZNER, STEPHEN M. ;
REPT. NO. R-1268-PR
CONTRACT: F44620-73-C-0011

UNCLASSIFIED REPORT

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *JOB ANALYSIS, *COST ANALYSIS, SYSTEMS ANALYSIS, AIR FORCE, COMMUNICATION EQUIPMENT, INPUT OUTPUT DEVICES, MEMORY DEVICES, COMPUTER PROGRAMMING, MAINTENANCE, MANPOWER (U)

THE REPORT DESCRIBES A COMPUTER MODEL DEVELOPED TO HELP INVESTIGATE THE COSTS OF CENTRALIZING U.S. AIR FORCE BASE-MODEL COMPUTATION WORKLOAD. THE MODEL PERMITS THE ANALYST TO ESTIMATE THE COST OF CONSOLIDATING MULTIPLE EXISTING OR PROPOSED FACILITIES INTO FEWER FACILITIES. THE REPORT DESCRIBES THE MODEL, THE ASSUMPTIONS IMPLICIT IN ITS WORLD VIEW, AND THE INPUTS REQUIRED BY THE ANALYST. THE LIMITATIONS OF THE MODEL AND POSSIBLE FUTURE MODIFICATIONS ARE ALSO DISCUSSED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 777 100 9/2 5/1
ARMY AUDIT AGENCY WASHINGTON D C

AUDIT: ARMY UNIFORM DATA INQUIRY TECHNIQUE - COMPUTER PROGRAMS, (U)

MAR 74 1V ROLIG,THEODORE C. ;

UNCLASSIFIED REPORT
AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED: 7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY; OR 9 TRACK, 800 BPI, ODD PARITY. ALSO AVAILABLE IN PUNCHED CARDS.
SUPPLEMENTARY NOTE: FOR USER'S MANUAL, SEE AD-777 101. FOR TECHNICAL MANUAL, SEE AD-777 102.

DESCRIPTORS: *COMPUTER PROGRAMS, *MAGNETIC TAPE, *MANAGEMENT INFORMATION SYSTEMS, *AUDITING, ARMY OPERATIONS, COMPILERS, BOOLEAN ALGEBRA (U)
IDENTIFIERS: *AUDIT SYSTEM, COBOL (U)

AUDIT IS A MANAGEMENT RETRIEVAL AND ANALYZER SYSTEM WHICH FEATURES AN EASY-TO-USE HUMAN-ENGINEERED SPECIFICATION LANGUAGE AND COBOL IMPLEMENTING SOFTWARE. THE REPORT CONTAINS THE MAGNETIC TAPE FOR THE SYSTEMS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 778 765 9/2 9/5
NORTH CAROLINA STATE UNIV RALEIGH DEPT OF ELECTRICAL ENGINEERING

RESEARCH PROPOSAL FOR MINIMAL COST SEQUENTIAL MACHINES, (U)

JAN 74 69P STAUDHAMMER,JOHN ;
REPT. NO. REPT. NO. 1
CONTRACT: DA-ARO-D-31-124-72-G65

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPRINTED WITH CORRECTIONS REPORT DATED JAN 73.

DESCRIPTORS: *GATES(CIRCUITS), *LOGIC CIRCUITS, MEMORY DEVICES, COMPUTATIONS, ALGORITHMS, COSTS (U)
IDENTIFIERS: *ASYNCHRONOUS SEQUENTIAL CIRCUITS, FLIP FLOPS, *SEQUENTIAL MACHINES, LOGIC DESIGN (U)

THE STATE ASSIGNMENT PROBLEM FOR MINIMAL LOGIC REQUIRED FOR A GENERAL SYNCHRONOUS MACHINE IS CONCEDED TO BE A COMPUTATIONALLY INTRACTABLE PROBLEM. HOWEVER RESEARCH CONDUCTED HERE OVER THE LAST 18 MONTHS INDICATES THAT A REALISTIC LOWER LIMIT MAY BE FOUND ON THE LOGIC REQUIRED AND THAT THE PROCEDURES USED TO CALCULATE THIS LIMIT MAY BE TAKEN AS A BASIS FOR GUIDING THE STATE ASSIGNMENT SUCH THAT A CIRCUIT APPROACHING THIS LIMIT MAY BE OBTAINED. FURTHERMORE, THE PROCEDURE MAY BE USED TO DECIDE ON THE KIND OF MEMORY ELEMENT TO BE USED. IT IS PROPOSED TO EXTEND THESE PRELIMINARY RESULTS TO ASYNCHRONOUS MACHINES, TO INCOMPLETELY SPECIFIED MACHINENES, AND TO INCLUDE OUTPUT CONSIDERATIONS. FURTHER IT IS PROPOSED TO CONSOLIDATE THESE FINDINGS IN A SET OF ALGORITHMS WHICH GIVE AN ACCEPTABLY GOOD STATE ASSIGNMENT FOR ARBITRARY, NONTRIVIAL MACHINES. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 779 158 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

APPLICATION OF A HIGH-SPEED ASSOCIATIVE MEMORY UNIT IN THE STORAGE SYSTEM OF THE 'URAL-11' DIGITAL COMPUTER, (U)

APR 74 12P MORONOV,A. M. ;MINEEV,G. YU. ;KOZINETS,YU. I. ;
REPT. NO. FTD-HT-23-562-74
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF NAUCHNO-ISSLEDOVATELSKII INSTITUT UPRAVLYAYUSHCHIKH MASHIN I SISTEM, INFORMATSIONNO-POISKOVYE SISTEMY. TRUDY (USSR) N4 P49-54 1970, BY RENE E. COURVILLE.

DESCRIPTORS: *DIGITAL COMPUTERS, *MEMORY DEVICES, TRANSLATIONS, USSR (U)
IDENTIFIERS: URAL-11 COMPUTERS, *ASSOCIATIVE STORAGE (U)

APPLICATION OF A HIGH-SPEED ASSOCIATIVE MEMORY UNIT IN THE STORAGE SYSTEM OF THE 'URAL-11' DIGITAL COMPUTER--TRANSLATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 779 452 9/2
HAWAII UNIV HONOLULU DEPT OF INFORMATION AND COMPUTER SCIENCE

AN INVESTIGATION OF COMPUTER SYSTEMS PROBLEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 74 19P PETERSON,W. W. ;LEW,A. ;
CONTRACT: DA-ARO-D-31-124-71-G43
PROJ: AROD-P-8803-RT
MONITOR: AROD 8803.17-RT

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMMING, *COMPILERS, *MEMORY DEVICES, SCHEDULING, SEMANTICS (U)
IDENTIFIERS: PAGING, PARSING, COMPUTER STORAGE MANAGEMENT, DEBUGGING(COMPUTERS) (U)

THE MAIN PROBLEM AREAS SUMMARIZED HERE ARE MULTIPROGRAMMING AND PAGING SYSTEMS, DIAGNOSTIC COMPILERS AND DEBUGGING, AND GOTO-LESS PROGRAMMING. IN THE AREA OF MULTIPROGRAMMING AND PAGING, THE AUTHORS HAVE STUDIED THE PROBLEMS OF OPTIMAL PAGINATION, REPLACEMENT, ALLOTMENT, AND SCHEDULING. IN THE AREA OF DIAGNOSTIC COMPILERS AND DEBUGGING, METHODS FOR INCREASING USE OF CONTEXTUAL INFORMATION IN BOTH PARSING AND RUN-TIME ENVIRONMENTS ARE STUDIED. POSSIBLE USES OF INEFFICIENCIES AS CLUES AND LANGUAGE DESIGN CONSIDERATIONS WERE ALSO INVESTIGATED. IN THE AREA OF GOTO-LESS PROGRAMMING, ALTERNATIVES TO GOTO STATEMENTS, THEIR CAPABILITIES AND THE CONSTRUCTION OF WELL-FORMED PROGRAMS ARE STUDIED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 779 884 9/2
CALIFORNIA UNIV LOS ANGELES SCHOOL OF ENGINEERING AND APPLIED SCIENCE

MEASUREMENT AND MODELING OF PROGRAM BEHAVIOR AND ITS APPLICATIONS, (U)

APR 74 286P OPDERBECK,HOLGER ;
REPT. NO. UCLA-ENG-7418
CONTRACT: N00014-69-A-0200-4027
PROJ: NR-048-129

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, *ALLOCATIONS, *COMPUTER PROGRAMMING, COMPILERS, REPLACEMENT, FAULTS, STOCHASTIC PROCESSES, ALGORITHMS, THESES (U)
IDENTIFIERS: *PAGING, VIRTUAL MEMORY, PAGE FAULT FREQUENCY, MARKOV PROCESSES, MULTIPROGRAMMING (U)

THE EMPHASIS OF THE RESEARCH IS ON THE MEASUREMENT AND MODELING OF PROGRAM BEHAVIOR IN A PAGED MEMORY SYSTEM. MEASUREMENT RESULTS ARE USED AS A FOUNDATION FOR THE STUDY OF PROGRAM BEHAVIOR. BASED ON THESE RESULTS, MODELS OF PROGRAM BEHAVIOR ARE DEVELOPED. THESE MODELS ARE THEN USED TO STUDY THE PERFORMANCE OF REPLACEMENT ALGORITHMS. A NEW TYPE OF REPLACEMENT ALGORITHM BASED ON THE MEASURED PAGE FAULT FREQUENCY (PFF) IS DEFINED AND INVESTIGATED. NEXT, TWO NEW PROGRAM MODELS, THE GENERALIZED LRU STACK MODEL (GLRUM) AND THE RENEWAL MODEL, ARE INTRODUCED. FINALLY, THE GLRUM IS USED FOR THE PERFORMANCE EVALUATION OF MULTIPROGRAMMING SYSTEMS. SEVERAL ACTIVATION AND DEACTIVATION POLICIES ARE DEFINED FOR THE PFF ALGORITHM AND INVESTIGATED VIA A SIMULATION STUDY. IT IS SHOWN THAT THE PFF REPLACEMENT ALGORITHM GIVES - OVER A WIDE RANGE OF MEMORY SIZES - A BETTER PERFORMANCE THAN THE LRU REPLACEMENT ALGORITHM FOR ANY DEGREE OF MULTIPROGRAMMING. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 129 9/2 17/2
MASSACHUSETTS INST OF TECH CAMBRIDGE

MULTICOMMODITY THROUGHPUT IN DIGITAL DATA NETWORKS WITH FINITE STORAGE, (U)

NOV 72 8P FIELDS,JOHN S. ;
CONTRACT: DAAB07-71-C-0300

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON COMMUNICATIONS, P836-842 JUL 73.
SUPPLEMENTARY NOTE: REVISION OF REPORT DATED 5 JUN 72.

DESCRIPTORS: *DATA PROCESSING, *MEMORY DEVICES, *NETWORK FLOWS, SWITCHING CIRCUITS, QUEUEING THEORY, SHIFT REGISTERS, THEOREMS (U)
IDENTIFIERS: *COMPUTER NETWORKS (U)

A MODEL OF A DIGITAL DATA MESSAGE SWITCHING NETWORK IS DESCRIBED. THE NETWORK PERMITS ONLY FINITE STORAGE AT NODES. DISCUSSED IS A ROUTING STRATEGY AND STORAGE ALLOCATION TO MAXIMIZE THROUGHPUT BETWEEN MANY SOURCE-RECEIVER PAIRS SIMULTANEOUSLY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 312 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

ON THE APPLICATION OF MATRIX PRINCIPLES WHEN DESIGNING DIGITAL COMPUTERS (TSVM) UTILIZING MULTIVALUE ELEMENTS. (U)

MAY 74 10P IVASKIV,YU. L. (BYCHENOK, N. N. ;

REPT. NO. FTD-HT-23-1022-74
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. MNOGOUSTOICHIVYE ELEMENTY I IKH PRIMENENIE. SBORNIK STATEI, N.P., 1971 P284-289, BY CATHERINE M. BARBER.

DESCRIPTORS: *DIGITAL COMPUTERS, *MEMORY DEVICES, MATRICES(MATHEMATICS), TRANSLATIONS, USSR (U)
IDENTIFIERS: ARITHMETIC AND LOGIC UNITS, DESIGN (U)

ON THE APPLICATION OF MATRIX PRINCIPLES WHEN DESIGNING DIGITAL COMPUTERS (TSVM) UTILIZING MULTIVALUE ELEMENTS--TRANSLATION.

AD-A031 200 DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA F/G 9/2
COMPUTERS IN INFORMATION SCIENCES: COMPUTER COMPONENTS.(U)
OCT 76
UNCLASSIFIED DDC/BIB-76/09 NL

2 OF 4
AD A031 200



DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 357 13/2 8/9 9/2
GENERAL RESEARCH CORP ARLINGTON VA

COMPUTER SIMULATION OF HARD ROCK TUNNELING PROGRAM: PROGRAM TAPE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. OCT 70-APR 72,
MAY 73 1V HIBBARD,R. R. ;PIETRZAK,L. M. ;
REPT. NO. GRC-CR-2-190-TAPE
CONTRACT: H0110238

UNCLASSIFIED REPORT
AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED: 7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY, BCD; OR 9 TRACK, 800 BPI, ODD PARITY, EBCDIC. AVAILABLE TO NON-U.S. ADDRESSES $375.00. PRICE INCLUDES DOCUMENTATION - AD-763 563 THRU AD-763 565 AND AD-763 567.

DESCRIPTORS: *CONSTRUCTION, *UNDERGROUND STRUCTURES, *COMPUTERIZED SIMULATION, *MAGNETIC TAPE, TUNNELING, GEOLOGICAL SURVEY, ROCK MECHANICS, FRAGMENTATION, EARTH HANDLING EQUIPMENT, COSTS, FORTRAN (U)
IDENTIFIERS: FORTRAN 4 PROGRAMMING LANGUAGE, *HARD ROCK TUNNELING, MATERIAL CONTROL, BENEFIT COST ANALYSIS (U)

THIS IS THE MAGNETIC TAPE CONTAINING COMPUTER PROGRAMS LISTED IN VOLUME 2 OF THE FINAL TECHNICAL REPORT GENERATED UNDER CONTRACT H0110238. A COMPUTER MODEL OF THE OVERALL HARD ROCK TUNNELING PROCESS WHICH CONSIDERS BOTH PERFORMANCE AND COSTS OF THE OPERATION WAS DEVELOPED. SEGMENTS OF THE TUNNELING PROCESS MODELED INCLUDE GEOLOGY, FRAGMENTATION METHODS, MUCK REMOVAL, GROUND SUPPORT, AND ENVIRONMENTAL CONSIDERATIONS. A THREE-DIMENSIONAL STRATIFIED GEOLOGY MODEL, FUNCTIONS AS A DATA FILE TO REPRESENT GEOLOGICAL CONDITIONS IN THE AREA SURROUNDING THE TUNNEL. THE USER HAS A CHOICE OF SIMULATING ROCK FRAGMENTATION BY DRILL AND BLAST, BORING MACHINE, HIGH VELOCITY WATER JET, AND PROJECTILE IMPACT. HE MAY ALSO SIMULATE EITHER RAIL, TRUCK, OR CONVEYOR BELT HAULAGE SYSTEMS. STEEL SETS, SHOTCRETE, AND ROCK BOLTS ARE OFFERED AS A CHOICE OF GROUND SUPPORT METHODS. ENVIRONMENTAL FACTORS CONSIDERED INCLUDE WATER REMOVAL, VENTILATION, AND COOLING. A COST ACCOUNTING SYSTEM IS INCORPORATED TO PROVIDE COST-BENEFIT ANALYSIS OF TUNNELING SYSTEM PERFORMANCE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 407 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE PROJECT MAC

AN EXPERIMENTAL ANALYSIS OF PROGRAM REFERENCE PATTERNS IN THE MULTICS VIRTUAL MEMORY. (U)

DESCRIPTIVE NOTE: INTERIM SCIENTIFIC REPT., MAY 74 142P GREENBERG,BERNARD S. ;
REPT. NO. MAC-TR-127
CONTRACT: N00014-70-A-0362-0006

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, RATES, COMPUTER PROGRAMMING, REAL TIME, FAULTS, QUEUEING THEORY, SCHEDULING, ALGORITHMS, THESES (U)
IDENTIFIERS: *PAGING, VIRTUAL MEMORY, MULTICS SYSTEM, COMPUTER STORAGE MANAGEMENT, MAC PROJECT (U)

THE REPORT DISCUSSES THE DESIGN, CONDUCTING, AND RESULTS OF AN EXPERIMENT INTENDED TO MEASURE THE PAGING RATE OF A VIRTUAL MEMORY COMPUTER SYSTEM AS A FUNCTION OF PAGING MEMORY SIZE. THIS EXPERIMENT, CONDUCTED ON THE MULTICS COMPUTER SYSTEM AT M.I.T., A LARGE INTERACTIVE COMPUTER UTILITY SERVING AN ACADEMIC COMMUNITY, SOUGHT TO PREDICT PAGING RATES FOR PAGING MEMORY SIZES LARGER THAN THE EXISTENT MEMORY AT THE TIME. A TRACE OF ALL SECONDARY MEMORY REFERENCES FOR TWO DAYS WAS ACCUMULATED, AND SIMULATION TECHNIQUES APPLICABLE TO 'STACK' TYPE PAGING ALGORITHMS (OF WHICH THE LEAST-RECENTLY-USED DISCIPLINE USED BY MULTICS IS ONE) WERE APPLIED TO IT. A TECHNIQUE FOR INTERFACING SUCH AN EXPERIMENT TO AN OPERATIVE COMPUTER UTILITY IN SUCH A WAY THAT ADEQUATE DATA CAN BE GATHERED RELIABLY AND WITHOUT DEGRADING SYSTEM PERFORMANCE IS DESCRIBED. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 780 732 9/2
BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

DYNAMIC STORAGE ALLOCATION FOR THE BRLESC II COMPUTER. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAY 74 29P HIRSCHBERG,MORTON A. ;
REPT. NO. BRL-1718

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMMING, MEMORY DEVICES, ALLOCATIONS, SUBROUTINES, FORTRAN (U)
IDENTIFIERS: *BRLESC 2 COMPUTER, *COMPUTER STORAGE MANAGEMENT, SIMSCRIPT PROGRAMMING LANGUAGE (U)

THE USE OF DYNAMIC STORAGE ALLOCATION FOR THE BRLESC II COMPUTER IS DESCRIBED, AS WELL AS THE USE OF LINKED LISTS. THIS SYSTEM WAS FASHIONED AFTER THE DYNAMIC STORAGE SCHEME USED IN SIMSCRIPT. SOME OF THE SIMSCRIPT NAMES BEING QUITE DESCRIPTIVE HAVE BEEN USED HERE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 781 182 9/2
MITRE CORP BEDFORD MASS

DESIGN OF A SECURE COMMUNICATIONS PROCESSOR: CENTRAL PROCESSOR, (U)

JUN 74 98P TASKER,P. S. ;
REPT. NO. MTR-2439-VOL-3
CONTRACT: F19628-73-C-0001
PROJ: AF-7210
MONITOR: ESD TR-74-181

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *DATA PROCESSING SECURITY, *CENTRAL PROCESSING UNITS, *COMMUNICATIONS NETWORKS, MEMORY DEVICES, SWITCHING CIRCUITS, COMPUTER PROGRAMMING, NETWORK FLOWS (U)
IDENTIFIERS: COMPUTER NETWORKS, IC I-50 COMMUNICATIONS PROCESSORS, ROUTING, COMPUTER INFORMATION SECURITY (U)

THE SECURE COMMUNICATIONS PROCESSOR IS INTENDED AS A FEASIBILITY MODEL FOR USE IN TESTING AND VERIFYING WORK CONCERNED WITH THE DESIGN AND CERTIFICATION OF SECURE ACCESS CONTROLS FOR COMPUTER SYSTEMS. THE SYSTEM WAS CONCEIVED TO BE HARDWARE INDEPENDENT, BUT IS IMPLEMENTED ON AN INTERCOMPUTER COMMUNICATIONS CORPORATION I-50 COMMUNICATIONS PROCESSOR. THE REPORT, THE THIRD CONTAINING THE DESIGN DETAILS, DISCUSSES THE CENTRAL PROCESSOR (PC), HALF OF THE DUAL PROCESSOR MESSAGE SWITCH. THIS VOLUME CONTAINS IMPLEMENTATION DETAILS OF THE ACCESS CONTROL AND SPECIAL INSTRUCTIONS FOR THE FIRMWARE AND SOFTWARE REQUIRING CERTIFICATION AS WELL AS OPERATING CONCEPTS AND A 'USERS' MANUAL' FOR CONSTRUCTING THE UNCERTIFIED ROUTINES FOR PC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 783 323 9/2
RAND CORP SANTA MONICA CALIF

COMPUTERS IN THE 1980S -- TRENDS IN HARDWARE TECHNOLOGY. (U)

MAR 74 20P TURN.REIN ;
REPT. NO. P-5189

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTERS, *FORECASTING, LOGIC CIRCUITS, SWITCHING CIRCUITS, PARALLEL PROCESSORS, MEMORY DEVICES, SOLID STATE ELECTRONICS, METAL OXIDE SEMICONDUTORS, BIPOLAR TRANSISTORS, COMMAND AND CONTROL SYSTEMS (U)
IDENTIFIERS: *COMPUTER SYSTEMS HARDWARE, ARRAY PROCESSORS, SEMICONDUCTOR COMPUTER STORAGE (U)

THE PAPER PRESENTS A TECHNOLOGICAL FORECAST OF COMPUTER HARDWARE TRENDS IN THE 1975 TO 1990 TIME PERIOD. PROJECTED ARE THE IMPROVEMENTS IN SWITCHING SPEED, POWER CONSUMPTION, COST AND PHYSICAL SIZE OF BIPOLAR AND METAL-OXIDE SEMICONDUCTOR LOGIC CIRCUITS. BASED ON THESE, THE COMPUTING SPEED OF PROCESSORS FOR SEVERAL COMPUTER ARCHITECTURES ARE FORECAST -- UNIPROCESSORS, PIPELINE PROCESSORS, ARRAY PROCESSORS, ASSOCIATIVE ARRAY PROCESSORS, AND FOR COMMAND-CONTROL, MULTIPROCESSORS. THE STORAGE CAPACITY AND ACCESS MEMORIES, AND SUMMARIZED FOR OTHER SOLID-STATE MEMORY COMPONENT TECHNOLOGIES. THE PAPER CONCLUDES WITH A DISCUSSION OF INNOVATIONS IN COMPUTER SYSTEM DESIGN AND USE WHICH BECOME FEASIBLE DUE TO THE EXPECTED HARDWARE DEVELOPMENTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 783 871 9/2
WASHINGTON UNIV ST LOUIS MO COMPUTER SYSTEMS LAB

MACROMODULAR COMPUTER DESIGN. PART 1.
DEVELOPMENT OF MACROMODULES. VOLUME I.
OVERVIEW OF MACROMODULES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 APR 65-1 DEC 73,
FEB 74 144P COAKER,CHRISTINE D. ;
REPT. NO. TR-44
CONTRACT: SD-302

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY NATIONAL INSTITUTES OF HEALTH, BETHESDA, MD. SEE ALSO AD-783 872.

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *MODULES(ELECTRONICS), *LOGIC DEVICES, MEMORY DEVICES, SHIFT REGISTERS, INPUT OUTPUT DEVICES, DATA PROCESSING TERMINALS (U)
IDENTIFIERS: *LOGIC DESIGN, ARITHMETIC AND LOGIC UNITS, *MACROMODULES (U)

THIS SET OF DOCUMENTS REPRESENTS AN ATTEMPT TO BRING TOGETHER IN ONE PLACE SUFFICIENT MATERIAL TO ENABLE THE READER TO OBTAIN A REASONABLE OVERVIEW OF THE MAJOR IDEAS AND CONCEPTIONS THAT GAVE RISE TO THE MACROMODULE DEVELOPMENT PROJECT AT WASHINGTON UNIVERSITY, AND TO REPORT AND RECORD SOME OF THE DETAILS OF THE ENSUING DEVELOPMENT EFFORT AND ITS RESULTS. PART 1 OF THE REPORT DEALS WITH THE DEVELOPMENT OF PHASE I MACROMODULES, OF WHICH OVER 800 MODULES OF 17 TYPES HAVE BEEN CONSTRUCTED AND MADE PART OF A WORKING INVENTORY THAT RESIDES AT WASHINGTON UNIVERSITY. THE VOLUME CONTAINS TWO EXCERPTED REPRINTS THAT PRESENT THE INITIAL CONCEPTION OF MACROMODULES AND MEANS FOR IMPLEMENTING THEM AS SEEN IN THE EARLY DAYS OF THE PROJECT, AND A THIRD REPRINTED REPORT THAT PRESENTS A SUMMARY AND OVERVIEW AS OF THE AUTUMN OF 1972. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 783 872 9/2
WASHINGTON UNIV ST LOUIS MO COMPUTER SYSTEMS LAB

MACROMODULAR COMPUTER DESIGN. PART I. DEVELOPMENT OF MACROMODULES. VOLUME II. A MACROMODULE USER'S MANUAL. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 74 133P DICKSON,CHRISTINE E. ;
REPT. NO. TR-45
CONTRACT: SD-302

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY NATIONAL INSTITUTES OF HEALTH, BETHESDA, MD. ALSO PUBLISHED AS REPT. NO. TR-25. SEE ALSO AD-783 873 AND AD-873 871.

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *MODULES(ELECTRONICS), *LOGIC DEVICES, MEMORY DEVICES, SHIFT REGISTERS, INPUT OUTPUT DEVICES, DATA PROCESSING TERMINALS, COMPUTER PROGRAMMING (U)
IDENTIFIERS: *LOGIC DESIGN, *MACROMODULES, ARITHMETIC AND LOGIC UNITS (U)

THE DOCUMENT SERVES AS A COMPREHENSIVE USER'S MANUAL FOR MACROMODULES. IT SUPPLIES INFORMATION ON MODULE CAPABILITIES AND OTHER FACTS NEEDED IN SYSTEM DESIGN, AND ALSO GIVES THE PHYSICAL DETAILS NECESSARY TO THE USER IN CONSTRUCTING AND OPERATING HIS SYSTEM. EXPALANATIONS ARE AT THE LEVEL OF AN 'ELECTRONICALLY NAIVE' USER, BUT SOME KNOWLEDGE OF MACHINE-LANGUAGE PROGRAMMING IS ASSUMED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 783 997 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

STANDARDIZATION OF THE SWITCHING CURRENT OF METALLIC-TAPE CORES FOR MULTI-STABLE FERROMAGNETIC ELEMENTS, (U)

JUL 74 10P KRAVCHENKO,V. B. ;LIPMAN, R. A. ;POPOV,V. V. ;
REPT. NO. FTD-HT-23-1013-74
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MNOGOUSTOICHIVYE ELEMENTY I IKH PRIMENENIE. SBORNIK STATEI (USSR) P134-139 1971, BY FRANK C. VAUGHN.

DESCRIPTORS: *MAGNETIC CORES, CORE STORAGE, MAGNETIC TAPE, SWITCHING, ELECTRIC CURRENT, STANDARDIZATION, STEADY STATE, MEASUREMENT, TRANSLATIONS, USSR (U)

STANDARDIZATION OF THE SWITCHING CURRENT OF METALLIC-TAPE CORES FOR MULTI-STABLE FERROMAGNETIC ELEMENTS--TRANSLATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 784 372 9/2 22/2
JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS LAB

TRIAD COMPUTER. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
AUG 73 175P PERSCHY,J. A. ;ELDER,B. M. ;
REPT. NO. APL-TG-1212
CONTRACT: N00017-72-C-4401
MONITOR: GIDEP 347.00.00.00-S6-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SPACECRAFT COMPONENTS, *DIGITAL COMPUTERS, SATELLITES(ARTIFICIAL), DATA PROCESSING EQUIPMENT, MEMORY DEVICES, INTEGRATED CIRCUITS, LOGIC DEVICES, INTERFACES (U)
IDENTIFIERS: *TRIAD COMPUTER, TRIAD SATELLITE, ARITHMETIC AND LOGIC UNITS (U)

THE TRIAD COMPUTER IS A THIRD-GENERATION, GENERAL PURPOSE, GROUND PROGRAMMABLE DIGITAL COMPUTER USED IN THE TRIAD SATELLITE AS A REAL-TIME CONTROLLER OPERATING UNDER A PRIORITY INTERRUPT SYSTEM. IT CONSISTS OF A DATA PROCESSOR, A MEMORY SECTION, AND A POWER PROCESSOR. THE DATA PROCESSOR USES STANDARD AND MEDIUM SCALE TTL INTEGRATED CIRCUITS ON HIGH DENSITY MULTILAYER BOARDS. THE MEMORY SECTION, WITH A CYCLE TIME OF 2.4 MICROSEC CONSISTS OF A 4K-WORD-BY-16-BIT AEROSPACE MEMORY STACK AND HYBRID CIRCUITRY FOR ADDRESS SELECTION AND DIGIT SENSING, PLUS A READ-ONLY MEMORY CONTAINING A BOOTSTRAP LOADER PROGRAM. THE POWER PROCESSOR PROVIDES POWER STORAGE PLUS POWER LEVEL SELECTION UNDER PROGRAM CONTROL. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 784 475 5/9 9/2
UNIVERSITY OF SOUTHERN CALIFORNIA LOS ANGELES BEHAVIORAL TECHNOLOGY LABS

INTERACTIVE COMPUTER GRAPHICS FOR PERFORMANCE-STRUCTURE-ORIENTED CAI. (U)

DESCRIPTIVE NOTE: SEMIANNUAL TECHNICAL REPT. 1 JAN-31 DEC 74,
JUL 74 38P RIGNEY,JOSEPH W. ;TOWNE, DOUGLAS M. ;KING,CAROLE A. ;
REPT. NO. TR-73
CONTRACT: N00014-67-A-0269-0025, ARPA ORDER-2284
PROJ: NR-154-326, RR042-06
TASK: RR042-06-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *COMPUTER AIDED INSTRUCTION, *COMPUTER GRAPHICS, *INTERACTIVE GRAPHICS, SUBSTITUTES, MECHANICAL COMPONENTS, OPERATION, COMPUTER PROGRAMMING, LEARNING, RETENTION(PSYCHOLOGY), VECTOR ANALYSIS, MINICOMPUTERS, DISPLAY SYSTEMS, CORE STORAGE, MEMORY DEVICES (U)
IDENTIFIERS: COMPLEX DEVICES, INVISIBLE PROCESSES, VECTOR GENERATION (U)

TWO DIFFERENT USES OF INTERACTIVE GRAPHICS IN CAI ARE DESCRIBED. INTERACTIVE GRAPHICS MAY BE USED AS SUBSTITUTES FOR PHYSICAL DEVICES AND OPERATIONS. AN EXAMPLE IS SIMULATION OF OPERATING ON MAN/MACHINE INTERFACES, SUBSTITUTING INTERACTIVE GRAPHICS FOR CONTROLS, INDICATORS, AND INDICATIONS. INTERACTIVE GRAPHICS MAY ALSO BE USED TO EXPLICATE INVISIBLE PROCESSES. EXAMPLES ARE INTERACTIVE GRAPHICS THAT ALLOW THE STUDENT TO INITIATE ANIMATIONS OF PHYSICAL PROCESSES AND INTERACTIVE BLOCK DIAGRAMS THAT ALLOW THE STUDENT TO LEARN THE FUNCTIONAL ORGANIZATION OF COMPLEX DEVICES. PROJECTS ARE UNDERWAY TO TEST THE EFFECTIVENESS OF THESE USES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 784 993 9/2
NAVAL RESEARCH LAB WASHINGTON D C

A FORTRAN PROGRAM TO UNPACK AND TRANSLATE NINE TRACK MAGNETIC TAPE DATA. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 20P MOSKO,MARY ELLEN ;
REPT. NO. NRL-MR-2844, NRL-COMPUTER BULL-39

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *MAGNETIC TAPE, SUBROUTINES, FORTRAN (U)
IDENTIFIERS: CDC 3800 COMPUTERS (U)

A FORTRAN PROGRAM HAS BEEN WRITTEN FOR THE CDC 3800 COMPUTER TO UNPACK DATA WHICH HAS BEEN READ FROM NINE TRACK MAGNETIC TAPE AND TRANSLATE THE DATA FROM EBCDIC-8, USASCII-8, OR CDC 3800 BCD CODE TO CDC 3800 BCD CODE. THE TRANSLATED DATA CAN BE RETURNED FROM THE SUBROUTINE IN THE FORM OF ONE CHARACTER PER WORD OR EIGHT CHARACTERS PER WORD. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 784 994 9/2
NAVAL RESEARCH LAB WASHINGTON D C

A FORTRAN PROGRAM TO COPY NINE TRACK MAGNETIC TAPE TO SEVEN TRACK MAGNETIC TAPE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 74 27P MOSKO,MARY ELLEN ;
REPT. NO. NRL-MR-2845, NRL-COMPUTER BULL-40

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *MAGNETIC TAPE, FORTRAN, CONTROL SEQUENCES, ALGORITHMS, TRANSLATORS (U)
IDENTIFIERS: CDC 3800 COMPUTERS, TRANSLATOR ROUTINES (U)

A FORTRAN PROGRAM HAS BEEN WRITTEN FOR THE CDC 3800 COMPUTER TO TRANSLATE SPECIFIED FILES AND RECORDS OF A NINE TRACK TAPE FROM EBCDIC-8, USASCII-8, OR CDC 3800 BCD CODE, PACKS THIS DATA EIGHT CHARACTERS PER WORD, AND WRITES THIS DATA ONTO SEVEN TRACK TAPE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 785 075 9/2
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

SEVERAL STOCHASTIC MODELS OF COMPUTER SYSTEMS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 73 278P COCHI,BERTRAND JEAN ;
REPT. NO. SU-SEL-74-035, TR-69
CONTRACT: N00014-67-A-0112-0044

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *QUEUEING THEORY, *SCHEDULING, MEMORY DEVICES, INPUT OUTPUT DEVICES, TIME SHARING, MATHEMATICAL MODELS, STOCHASTIC PROCESSES, MARKOV PROCESSES, NETWORK FLOWS, THESES (U)

THE AUTHOR ANALYZES A CPU EXECUTING MORE THAN ONE INSTRUCTION DURING A MEMORY CYCLE AND MAKING REQUESTS TO AN INTERLEAVED MEMORY SYSTEM. THE ANALYSIS LEADS TO AN EXPRESSION FOR THE EXPECTED NUMBER OF INSTRUCTIONS EXECUTED PER MEMORY CYCLE IN TERMS OF THE DEGREE OF INTERLEAVING, THE MAXIMUM NUMBER OF INSTRUCTIONS EXECUTED PER MEMORY CYCLE AND THE PARAMETERS REPRESENTING THE PROGRAM BEHAVIOR. IT IS OBSERVED THAT THE USE OF MEMORY INTERLEAVING INCREASES THE THROUGHPUT BY A FACTOR OF, AT MOST, TWO. QUEUEING NETWORKS AND SEQUENCES OF QUEUEING CENTERS ARE ANALYZED WHEN THE QUEUES HAVE FINITE CAPACITY. OPEN AND CLOSED QUEUEING NETWORKS WITH DIFFERENT PRIORITY CLASSES OF CUSTOMERS AND GENERAL SERVICE TIME AND ARRIVAL TIME DISTRUBUTIONS, DEPENDING ON THE PRIORITY CLASS OF THE CUSTOMER AND THE SERVICE CENTER. FINALLY, THE EFFECTS OF THE DISTRIBUTION OF SERVICE TIME AND THE LENGTH OF THE QUANTUM ON THE MEAN WAITING TIME FOR DIFFERENT QUANTUM CONTROLLED SERVICE DISCIPLINES ARE STUDIED. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 785 355 9/2
FEDERAL COBOL COMPILER TESTING SERVICE WASHINGTON D C

SYNTHETIC PROGRAMS LIBRARY - CONCEPTS AND FACILITIES. (U)

DESCRIPTIVE NOTE: SOFTWARE.
JUN 74 1V
MONITOR: DOD/DF 74/002

UNCLASSIFIED REPORT
AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED: 7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY, BCD; OR 9 TRACK, 800 BPI ODD PARITY, EBCDIC. PRICE INCLUDES USERS GUIDE, AD-785 357. COPIES NOT AVIALBLE FROM DDC. ORDER DIRECTLY FROM NTIS.

DESCRIPTORS: *PROGRAMMING LANGUAGES, *COMPILERS, *MAGNETIC TAPE, CONVERSION, CONTROL SEQUENCES, COMPUTER PROGRAMS (U)
IDENTIFIERS: *COBOL, *SYNTHETIC COMPUTER PROGRAMS, BENCHMARK ROUTINES, UNIVAC 1108 COMPUTERS (U)

A SMALL LIBRARY OF SYNTHETIC COBOL PROGRAMS HAS BEEN DEVELOPED, AND EXPERIMENTS ARE BEING CONDUCTED TO DETERMINE ITS SUITABILITY AS A SOURCE OF BENCHMARK PROGRAMS. THE SYNTHETIC PROGRAMS ARE TASK-ORIENTED AND COMPLETELY PORTABLE. PARAMETERS CAN BE VARIED AT COMPILE TIME OR EXECUTE TIME, AND THE DESIGN OF EACH PROGRAM IS SUITABLE TO EXTENSIONS, SO THAT A WIDE RANGE OF EVENTUALITIES CAN BE ACCOMODATED. THE BEHAVIOR OF THESE PROGRAMS, RUNNING INDEPENDENTLY AND IN A MIX, HAS BEEN MEASURED. SEVERAL PROBLEM AREAS HAVE BEEN UNCOVERED AND ARE DISCUSSED IN THE ATTACHED PAPER. ALSO DISCUSSED ARE POTENTIAL USES AND LIMITATIONS OF SYNTHETIC PROGRAMS IN THE CONTEXT OF SYSTEM BENCHMARKS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 785 590 9/2
FEDERAL COBOL COMPILER TESTING SERVICE WASHINGTON D C

BENCHMARK PORTABILITY SYSTEM. (U)

DESCRIPTIVE NOTE: SOFTWARE.
JUN 74 1V
MONITOR: DOD/DF 74/001

UNCLASSIFIED REPORT
AVAILABILITY: SPECIFY TAPE RECORDING MODE DESIRED; 7 TRACK, 556 AND 800 BPI, ODD AND EVEN PARITY, BCD; OR 9 TRACK, 800 BPI, ODD PARITY, EBCDIC. PRICE INCLUDES USERS GUIDE, AD-785 356. COPIES NOT AVAILABLE FROM DDC. ORDER DIRECTLY FROM NTIS.

DESCRIPTORS: *PROGRAMMING LANGUAGES, *COMPILERS, *MAGNETIC TAPE, VALIDATION, CONVERSION, CONTROL SEQUENCES, COMPUTER PROGRAMS (U)
IDENTIFIERS: *COBOL, *BENCHMARK ROUTINES, TRANSLATOR ROUTINES, COMPUTER PROGRAM VERIFICATION, BENCHMARK PORTABILITY SYSTEM (U)

THE REPORT PRESENTS THE SOFTWARE OF THE BENCHMARK PORTABILITY SYSTEM ON MAGNETIC TAPE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 786 694 9/2
NAVAL RESEARCH LAB WASHINGTON D C

ON THE EXTERNAL STORAGE FRAGMENTATION PRODUCED BY FIRST-FIT AND BEST-FIT ALLOCATION STRATEGIES. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
JUL 74 32P SHORE,JOHN E. ;
REPT. NO. NRL-MR-2848
PROJ: NRL-54BD2-15, RF21-22
TASK: RF21-22-401

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MEMORY DEVICES, *ALLOCATIONS, STATISTICAL ANALYSIS, COMPUTER PROGRAMMING (U)
IDENTIFIERS: *COMPUTER STORAGE MANAGEMENT (U)

PUBLISHED COMPARISONS OF THE EXTERNAL FRAGMENTATION PRODUCED BY FIRST-FIT AND BEST-FIT MEMORY ALLOCATION HAVE NOT BEEN CONSISTENT. THROUGH SIMULATION, A SERIES OF EXPERIMENTS WERE PERFORMED IN ORDER TO OBTAIN BETTER DATA ON THE RELATIVE PERFORMANCE OF FIRST-FIT AND BEST-FIT AND A BETTER UNDERSTANDING OF THE REASONS UNDERLYING OBSERVED DIFFERENCES. THE TIME-MEMORY-PRODUCT EFFICIENCIES OF FIRST-FIT BEST-FIT WERE GENERALLY WITHIN ABOUT 1% OF EACH OTHER. EXCEPT FOR SMALL POPULATIONS, THE SIZE OF THE REQUEST POPULATION HAD LITTLE EFFECT ON ALLOCATION EFFICIENCY. FOR EXPONENTIAL DISTRIBUTIONS OF REQUESTS, FIRST-FIT OUTPERFORMED BEST-FIT, BUT FOR NORMAL AND UNIFORM DISTRIBUTIONS, AND FOR EXPONENTIAL DISTRIBUTIONS DISTORTED IN VARIOUS WAYS, BEST-FIT OUTPERFORMED FIRST-FIT. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 786 842 9/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

BRANCHED CORE LOGIC ELEMENTS, (U)

APR 74 19P VESELOVSKII,G. G. ;
ROZENBLAT,M. A. ;SUBBOTINA,G. V. ;
TSAREGRADSKII,F. I. ;
REPT. NO. FSTC-HC-23-346-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED TRANS. OF MONO. MAGNITNYE ELEMENTY DISKRETNOGO DEISTVIYA, MOSCOW, 1972 P72-80.

DESCRIPTORS: *LOGIC CIRCUITS, *MAGNETIC CORES, BOOLEAN ALGEBRA, TRANSLATIONS, USSR (U)
IDENTIFIERS: LOGIC DESIGN (U)

ONE OF THE WAYS OF BOOSTING THE RELIABILITY AND CUTTING THE COSTS OF MAGNETIC DIGITAL ELEMENTS AND SYSTEMS IS CONSTRUCTING SYSTEMS OF MAGNETIC ELEMENTS AND DEVICES WITH BRANCHED CORES; THIS SHARPLY REDUCES THE TOTAL NUMBER OF CORES, WINDINGS, AND OTHER COMPONENTS. THESE ELEMENTS AND DEVICES USED IN MAKING WINDINGS OF THE SINGLE-TURN TYPE, OPEN UP THE POTENTIALITY OF CONSTRUCTING INTEGRATED MAGNETIC DIGITAL CIRCUITS BASED ON GROUP METHODS OF MANUFACTURE. THIS POSSIBILITY IS DISCUSSED IN THE REPORT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 008 9/2
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

INTERFERENCE IN MULTIPROCESSOR COMPUTER SYSTEMS WITH INTERLEAVED MEMORY. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 74 44P BASKETT,FOREST ;SMITH,ALAN JAY ;
REPT. NO. STAN-CS-74-450, TR-90
CONTRACT: N00014-67-A-0112-0044, NSF-GJ-35720
PROJ: SRI-6930, SRI-6940

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MULTIPROCESSORS, *MEMORY DEVICES, MATHEMATICAL MODELS, MARKOV PROCESSES, QUEUEING THEORY, COMPUTER PROGRAMMING, GRAPHICS (U)

THE AUTHORS ANALYZE THE MEMORY INTERFERENCE CAUSED BY SEVERAL PROCESSORS SIMULTANEOUSLY USING SEVERAL MEMORY MODULES. THE EXACT RESULTS ARE COMPUTED FOR A SIMPLE MODEL OF SUCH A SYSTEM. THE AUTHORS DERIVE THE LIMITING VALUE FOR THE RELATIVE DEGREE OF MEMORY INTERFERENCE AS THE SYSTEM SIZE INCREASES. THE MODEL OF THE LIMITING BEHAVIOR OF THE SYSTEM YIELDS APPROXIMATE RESULTS FOR THE SIMPLE MODEL AND ALSO SUGGESTS THAT THE RESULTS ARE VALID FOR A MUCH LARGER CLASS OF MODELS INCLUDING THOSE MORE NEARLY LIKE REAL SYSTEMS THAN THE SIMPLE MODEL. THE AUTHORS TEST THE ASSUMPTIONS AND RESULTS OF THE SIMPLE MODEL AGAINST SOME MEASUREMENTS OF PROGRAM BEHAVIOR AND SIMULATIONS OF SYSTEMS USING MEMORY REFERENCES FROM REAL PROGRAMS. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 031 9/2
BROWN UNIV PROVIDENCE R I CENTER FOR COMPUTER AND INFORMATION SCIENCES

REGIME BEHAVIOR IN PAGE REFERENCING PATTERNS OF COMPUTER PROGRAMS, (U)

JUL 74 105P SAMPSON,PAUL D. ;
REPT. NO. 28
CONTRACT: N00014-67-A-0191-0026

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: REPORT ON PATTERN ANALYSIS.

DESCRIPTORS: *COMPUTER PROGRAMMING, *MEMORY DEVICES, COMPILERS, FORTRAN (U)
IDENTIFIERS: *PERFORMANCE EVALUATION, COMPUMETRICS, *PAGING, COMPUTER STORAGE MANAGEMENT (U)

THE EXECUTION OF COMPUTER PROGRAMS IN MODERN MULTIPROGRAMMED ENVIRONMENTS MUST BE FREQUENTLY INTERRUPTED FOR REFERENCE TO INFORMATION STORED IN DIFFERENT LEVELS OF MEMORY. IT FOLLOWS THAT THE MANNER IN WHICH PROGRAMS REFERENCE STORED INFORMATION IS OF PRIMARY IMPORTANCE IN THE EVALUATION OF COMPUTER PERFORMANCE. THIS PAPER DESCRIBES A STUDY OF SOME OF THE CHARACTERISTICS OF PROGRAM REFERENCING PATTERNS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 677 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER PROJECT. (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. 13 MAR-30 JUN 74.
JUN 74 96P
CONTRACT: MDA903-74-C-0225, ARPA ORDER-2687

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *DATA STORAGE SYSTEMS, *COMMUNICATIONS NETWORKS, DATA PROCESSING, MEMORY DEVICES, INTERFACES, COMPUTER PROGRAMMING, PROGRAMMING LANGUAGES (U)
IDENTIFIERS: DATACOMPUTER PROJECT, *COMPUTER NETWORKS, ARPA COMPUTER NETWORK (U)

THE DATACOMPUTER SYSTEM IS BEING DESIGNED AS A LARGE-SCALE DATA STORAGE UTILITY TO BE ACCESSED FROM REMOTE COMPUTERS ON THE ARPANET AND, POTENTIALLY, ON OTHER NETWORKS. THE DEVELOPMENT IS PHASED, WITH EACH SUCCESSIVE RELEASE OF THE SYSTEM OFFERING INCREASED CAPABILITIES TO USERS. DURING THE PRESENT REPORTING PERIOD, THE SECOND MAJOR RELEASE OF THE SYSTEM BECAME OPERATIONAL. THIS RELEASE, WHILE STILL PRIMITIVE IN MANY RESPECTS, IS BEGINNING TO PROVIDE EXPERIENCE WITH ACTUAL APPLICATIONS AND USER PROGRAMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 787 861 9/2
ROME AIR DEVELOPMENT CENTER GRIFFISS AFB N Y

AN INTRODUCTION TO RADC/DICEF'S C8500 COMPUTER SYSTEM. (U)

AUG 74 101P STURDEVANT,NORMAN J. ;
REPT. NO. RADC-TR-74-215
PROJ: AF-4519

UNCLASSIFIED REPORT

DESCRIPTORS: *CENTRAL PROCESSING UNITS, MEMORY DEVICES, LOGIC DEVICES, INPUT OUTPUT DEVICES, COMPUTER PROGRAMMING (U)
IDENTIFIERS: COLLINS 8500 COMPUTERS (U)

THE INTENT OF THIS REPORT IS TWOFOLD. FIRST, IT IS TO ESTABLISH A SINGLE DOCUMENT WHICH CAN PROVIDE THE READER WITH A PRELIMINARY AND FUNDAMENTAL UNDERSTANDING OF THE OPERATING CONCEPTS AND INHERENT CAPABILITIES OF THE COLLINS C8500 COMPUTER SYSTEM. SECONDLY, TO PROVIDE AN APPRAISAL OF THE SUITABILITY AND UTILITY OF THE C8500 SYSTEM BASED ON PROJECTED EXPERIMENTATION REQUIREMENTS IN DIRECT SUPPORT OF RADC'S COMMUNICATIONS AND NAVIGATION DIVISION MISSION. IT IS INTENDED THAT THIS INFORMATION WILL PROVIDE THE READER WITH AN UNDERSTANDING OF THE SYSTEM FROM A PROSPECTIVE USER'S STANDPOINT. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 870 8/2 9/2
INFORMATICS INC ROME N Y

LINEAL TO RASTER IMAGE CONVERSION SYSTEM.
VOLUME I, SYSTEM DESCRIPTION. (U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 72-JUL 74,
AUG 74 37P STANNARD,JOHN E. ; JR.;
HARODECKI,KENNETH D. ;
REPT. NO. TR-74-1574 VOL-1
CONTRACT: F30602-73-C-0086
MONITOR: RADC TR-74-233-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-787 871.

DESCRIPTORS: *MAPPING, *COMPUTER GRAPHICS, *COMPUTER PROGRAMMING, PLOTTERS, MEMORY DEVICES, INTERFACES (U)
IDENTIFIERS: PDP-9 COMPUTERS, PDP-15 COMPUTERS (U)

THIS REPORT DESCRIBES THE COMPUTER PROGRAMS WHICH WERE WRITTEN TO PROVIDE (1) THE CONVERSION OF DIGITAL DATA FROM A LINEAL FORMAT TO A RASTER IMAGE FORMAT AND (2) THE CAPABILITY TO GENERATE AND PLACE POINT SYMBOLS AND ALPHA-NUMERICS. ALSO INCLUDED IN THE REPORT ARE THE RESULTS OF A STUDY WHICH INVESTIGATED THE POSSIBILITY OF CONSOLIDATING THE EXISTING CARTOGRAPHIC DIGITIZING PLOTTER (CDP) SYSTEM AND EXPERIMENTAL COMPILATION CONSOLE (ECC) SYSTEM. THE IMAGE CONVERSION PROGRAMS OPERATE ON THE H635/645 COMPUTER AT RADC AND THE PLACEMENT PROGRAMS ON THE PDP-9/PDP-15 COMPUTERS. THE CONSOLIDATED CDP/ECC SYSTEM WOULD BE IMPLEMENTED ON THE PDP-9. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 787 871 8/2 9/2
INFORMATICS INC ROME N Y

LINEAL TO RASTER IMAGE CONVERSION SYSTEM.
VOLUME II, SOFTWARE DOCUMENTATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. NOV 72-JUL 74,
AUG 74 368P STANNARD,JOHN E. , JR.;
HARODECKI,KENNETH D. ;
REPT. NO. TR-74-1574 VOL-2
CONTRACT: F30602-73-C-0086
MONITOR: RADC TR-74-233-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MAPPING, *COMPUTER GRAPHICS,
*COMPUTER PROGRAMMING, PLOTTERS, MEMORY DEVICES,
INTERPOLATION, CONTROL SEQUENCES (U)
IDENTIFIERS: PDP-9 COMPUTERS, PDP-15
COMPUTERS (U)

THIS VOLUME OF THE FINAL TECHNICAL REPORT PROVIDES A DETAILED DESCRIPTION OF THE SOFTWARE WHICH WAS IMPLEMENTED FOR THE LINEAL TO RASTER IMAGE CONVERSION (LRIC) SYSTEM. THE LRIC SYSTEM HAS INCREASED THE UTILITY OF THE ADVANCED CARTOGRAPHIC SYSTEM (ACS) AT RADC BY ADDING THE CAPABILITY TO ENTER POINT SYMBOLS OR APHANUMERIC TEXT INTO THE DATA BASE AND MODIFYING THE FORMAT CONVERSION PROCESS. THE SYMBOLS AND TEXT ARE ENTERED VIA THE CRT CONNECTED TO THE PDP-15 COMPUTER WITHIN THE RADC EXPERIMENTAL CARTOGRAPHIC FACILITY (ECF). THE LINEAL TO RASTER CONVERSION, WITH ITS ASSOCIATED OUTPUT FORMAT OPTIONS, IS PERFORMED ON THE H635/645 COMPUTER AT RADC. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 900 282 9/2
SYSTEM DEVELOPMENT CORP SANTA MONICA CALIF

AEROSPACE MULTIPROCESSOR EXECUTIVE. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 71-JAN 72,
JUN 72 205P KILBRIDE,KERRY E. ;IWASA,
LYNN E. ;SCHEID,JOHN F. ;
REPT. NO. SDC-TM-4940
CONTRACT: F33615-71-C-1745
PROJ: AF-4421, AF-6090
TASK: 609001
MONITOR: AFAL TR-72-82

UNCLASSIFIED REPORT

DESCRIPTORS: (*SUBROUTINES, DATA PROCESSING), (*COMPUTER PROGRAMS, SUBROUTINES), REAL TIME, AIRBORNE, SPACEBORNE, ERRORS, SCHEDULING, ALGORITHMS, INTERFERENCE, MEMORY DEVICES, FAILURE(ELECTRONICS), INPUT OUTPUT DEVICES, FLOW CHARTING (U)
IDENTIFIERS: AVIONICS, COMPUTER PROGRAMS, COROUTINES, *EXECUTIVE ROUTINES, MESSAGE TRAFFIC, COMPUTERS, MULTIPLE OPERATION, MULTIPROGRAMMING, PARALLEL PROCESSING (U)

THE PURPOSE OF THE PROJECT WAS TO PRODUCE A FLEXIBLE AND SIMPLE EXECUTIVE STRUCTURE, SUPPORTING A BROAD SPECTRUM OF APPROACHES TO SCHEDULING, PARALLEL PROCESSING, RESOURCE ALLOCATION AND GRACEFUL DEGRADATION. THE EXECUTIVE ITSELF MUST BE CAPABLE OF OPERATING DEDICATED TO A SINGLE PROCESSOR, TO FLOAT FREELY AMONG PROCESSORS, OR ANY COMBINATION OF THE TWO METHODS. THE EXECUTIVE MUST HAVE WIDE APPLICABILITY AMONG MANY TYPES OF MULTIPROCESSOR DEVICES AND REAL-TIME DATA PROCESSING APPLICATIONS. THE EXECUTIVE STRUCTURE IS TO BE USED IN FUTURE GROUND-BASED, AIRBORNE AND SPACEBORNE APPLICATIONS BY TAILORING THE DESIGN TO GIVEN SPECIFIC MISSION COMPUTING REQUIREMENTS. THIS APPROACH IS EXPECTED TO AVOID THE CONVENTIONAL DIFFICULTIES OF SOFTWARE PRODUCTION BY FACILITATING TIMELY AND ORDERLY PLANNING AND IMPLEMENTATION OF SOFTWARE FOR AEROSPACE MULTIPROCESSORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 907 626 17/2 9/2 5/2
RAND CORP SANTA MONICA CALIF

INFORMATION PROCESSING/DATA AUTOMATION IMPLICATIONS OF AIR FORCE COMMAND AND CONTROL REQUIREMENTS IN THE 1980S (CCIP-85). VOLUME V. TECHNOLOGY TRENDS: HARDWARE. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 73 281P TURN,REIN ;SINE,BARRY ;
REPT. NO. R-1011-PR
CONTRACT: F44620-67-C-0045
PROJ: AF-1306
MONITOR: SAMSO,SAMSO XRS-71-1-VOL-5,TR-72-122-VOL-5

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: (*COMMAND AND CONTROL SYSTEMS, *DATA PROCESSING), (*DIGITAL COMPUTERS, AIR FORCE OPERATIONS), INFORMATION RETRIEVAL, PLANNING, INTEGRATED SYSTEMS, SCIENTIFIC RESEARCH, MILITARY REQUIREMENTS, AUTOMATION, COMPUTER PROGRAMMING, WAR GAMES, COMPUTERS, DATA STORAGE SYSTEMS, RECORDING SYSTEMS, MANEUVERS, MATHEMATICAL ANALYSIS, SEMICONDUCTORS, COMMUNICATIONS CENTRAL, GLOBAL COMMUNICATION SYSTEMS, SURVIVAL(PERSONNEL), NUCLEAR EXPLOSIONS, MEMORY DEVICES, COMPUTER LOGIC, ANALOG-DIGITAL COMPUTERS, COMPUTERS, GATES(CIRCUITS), ELECTROOPTICS, DISPLAY SYSTEMS (U)
IDENTIFIERS: AMORPHOUS MATERIALS, SEMICONDUCTORS, ASSOCIATIVE PROCESSORS, AVIONICS, COMPUTER PROGRAMS, HEAD UP DISPLAYS, *INFORMATION PROCESSING, LARGE SCALE INTEGRATION, MAGNETIC BUBBLES, MASS MEMORIES, METAL OXIDE SEMICONDUCTORS, PLATED WIRE MEMORIES, RANDOM ACCESS MEMORIES, TECHNOLOGICAL FO (U)

THIS VOLUME OF THE CCIP-85 STUDY REPORT DESCRIBES CURRENT STATE OF THE ART OF DIGITAL-COMPUTER-HARDWARE TECHNOLOGY AND FORECASTS THE APPLICATION OF THIS TECHNOLOGY TO AIR FORCE COMMAND AND CONTROL SYSTEMS OVER THE NEXT 20 YEARS. ESTIMATES OF THE TECHNICAL CHARACTERISTICS AND CAPABILITIES OF DATA-PROCESSING SYSTEMS, SUBSYSTEMS, AND COMPONENTS THAT ARE LIKELY TO BE AVAILABLE OR THAT COULD BE DEVELOPED FOR AIR FORCE COMMAND AND CONTROL SYSTEM APPLICATIONS IN THE 1980S ARE GIVEN. THE APPROACH TAKEN HAS BEEN CALLED 'SURPRISE-FREE' TECHNOLOGICAL FORECASTING, (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 908 524 9/4 17/2
ELECTRONIC COMMUNICATIONS INC ST PETERSBURG FLA

DIGITAL INTERFACE CODE CONVERTER. (U)

DESCRIPTIVE NOTE: FINAL REPT. 23 JUN 71-23 DEC 72,
JAN 73 50P BETTS,WILLIAM L. ;MOORE,
WILLIAM H. ;STAUDT,FEATHER A. ;
REPT. NO. ECI-1-AER-0035
CONTRACT: DAAB07-71-C-0344
MONITOR: ECOM 0344-F-71

UNCLASSIFIED REPORT

DESCRIPTORS: (*CODING, DIGITAL SYSTEMS), (*DATA TRANSMISSION SYSTEMS, COMMUNICATION SYSTEMS), INTERFACES, PULSE CODE MODULATION, MULTIPLEXING, MAPPING, SIMULATION, MEMORY DEVICES, INFORMATION THEORY, SYNCHRONIZATION(ELECTRONICS), ANALOG SYSTEMS, DETECTORS, MATHEMATICAL MODELS (U)
IDENTIFIERS: *CODE CONVERTERS, COMPUTERIZED SIMULATION, READ ONLY MEMORIES, STRATEGIC COMMUNICATIONS, TACTICAL COMMUNICATIONS (U)

THE DESIGN, DEVELOPMENT, FABRICATION, AND TESTING OF ONE EXPLORATORY DEVELOPMENT MODEL OF THE DIGITAL INTERFACE CODE CONVERTER WAS COMPLETED. THE CODE CONVERTER INTERFACES TWO PCM MULTIPLEXERS WHICH UTILIZE DIFFERENT COMPANDING CHARACTERISTICS, BIT RATES, SYNCHRONIZATION CODE FORMATS, AND SIGNALLING FORMATS. THE AACOMS TD-352 AND TD-660 TACTICAL MULTIPLEXERS WHICH USE A 6-BIT QUANTIZED, 3 SEGMENT COMPANDED PCM FORMAT ARE DIGITALLY INTERFACED TO THE STRATEGIC TD-968 MULTIPLEXER WHICH USES AN 8-BIT QUANTIZED, 15 SEGMENT COMPANDED PCM FORMAT. CONVERSIONS BETWEEN THE TACTICAL IN-BAND TONE SIGNALLING FORMAT AND THE STRATEGIC E AND M SIGNALLING FORMAT ARE MADE BY THE CODE CONVERTER. THE CURRENT INTERFACE IS ON A SERIAL 12-CHANNEL BASIS AND A DESIGN PLAN HAS BEEN DEVELOPED FOR IMPLEMENTATION OF A 24-CHANNEL INTERFACE USING TD-204 OR TD-754 COMBINERS. RATE CONVERSION IS PERFORMED VIA FREQUENCY MULTIPLYING PHASE LOCKED LOOPS, FRAME SYNCHRONIZATION IS ESTABLISHED, A MAPPING BETWEEN THE 2 CODES IS PERFORMED VIA READ-ONLY MEMORIES, AND SIGNALLING INFORMATION CONVERSION IS PERFORMED VIA A PHASE LOCKED LOOP TONE DETECTOR AND A DIGITAL TONE GENERATOR. THE MAPPING OPTIMIZES PERFORMANCE IN THE AREAS OF SIGNAL-TO-IDLE CHANNEL NOISE RATIO, SIGNAL-TO-QUANTIZING NOISE RATIO, (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 911 659 9/2
AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

PLATED-WIRE MEMORY STATE-OF-THE-ART STUDY (1972). (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. 1 OCT-30 NOV 72,
JUN 73 57P IVES,JOHN M. ;
REPT. NO. AFWL-TR-73-115
PROJ: AF-8809
TASK: 880903

UNCLASSIFIED REPORT

DESCRIPTORS: (*MEMORY DEVICES, STATE-OF-THE-ART REVIEWS), DAMAGE, RADIATION EFFECTS, HARDENING, MAGNETIC FIELDS, SWITCHING CIRCUITS, COSTS, INPUT OUTPUT DEVICES, WIRE, COILS, HELIXES, SURFACE PROPERTIES, FILMS, TRANSFORMERS, NUCLEAR RADIATION, VULNERABILITY, DECODING (U)
IDENTIFIERS: NONDESTRUCTIVE READOUTS, *PLATED WIRE MEMORIES, RADIATION HARDENING (U)

A WIRE PLATED WITH A MAGNETIC SURFACE CAN BE USED AS A COMPUTER MEMORY ELEMENT BY ALTERNATING THE POLARITY OF THE MAGNETIC FIELD. WHILE THE WIRE IN DIFFERENT ENCLOSURE CONFIGURATIONS CAN HOLD ITS FIELD IN EITHER A LONGITUDINAL OR A RADIAL DIRECTION, THE RADIALLY ORIENTED FIELD CURRENTLY IS FOUND TO HAVE MANY ADVANTAGES WITH RESPECT TO SWITCHING SPEED, RADIATION HARDNESS, AND ASSOCIATED PERIPHERAL EQUIPMENT. THE CONSTRUCTION OF THE WIRE PRESENTS MANY PARAMETER BALANCING PROBLEMS AND NEEDS VERY TIGHT ENVIRONMENTAL CONTROLS FOR PRACTICAL PRODUCTION. THESE PROBLEMS HAVE NOT YET BEEN ELIMINATED, KEEPING THE BIT COST IN THESE MEMORIES HIGH. THE PERFORMANCE, HOWEVER, OF THE RADIALLY ORIENTED TYPE COMPARED TO FERRITE CORES AND SEMICONDUCTOR MEMORIES AUGMENTS THIS HIGH COST. A RECENTLY DEVELOPED 2-MIL WIRE SIZE ELEMENT ELIMINATES SOME OF THE PROBLEMS FOUND IN THE PREVIOUSLY STANDARD 5-MIL WIRE SYSTEMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 911 826 9/5 9/1 9/2
ROCKWELL INTERNATIONAL CORP ANAHEIM CALIF AUTONETICS DIV

RELIABILITY EVALUATION OF LSI MICROCIRCUITS. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR 71-OCT 72, MAY 73 211P LINDWEDEL,JAMES H. ;
REPT. NO. C72-1032/201
CONTRACT: F30602-71-C-0230
MONITOR: RADC TR-73-127

UNCLASSIFIED REPORT

DESCRIPTORS: (*INTEGRATED CIRCUITS, TEST METHODS), (*SEMICONDUCTOR DEVICES, RELIABILITY(ELECTRONICS)), SEMICONDUCTOR DIODES, SILICON, MOLYBDENUM, DOPING, HERMETIC SEALS, SHIFT REGISTERS, LOGIC CIRCUITS, GATES(CIRCUITS), MEMORY DEVICES, DIGITAL COMPUTERS, CLOCKS, DRIFT, FAILURE(ELECTRONICS), PREDICTIONS, DAMAGE, RADIATION EFFECTS (U)
IDENTIFIERS: BUFFER STORAGE, COMPLEMENTATRY METAL OXIDE SEMICONDUCTORS, COUNTING CIRCUITS, ION IMPLANTATION, *LARGE SCALE INTEGRATION, METAL OXIDE SEMICONDUCTORS, P CHANNEL METAL OXIDE SEMICONDUCTORS, RANDOM ACCESS MEMORIES, SCHOTTKY BARRIER DEVICES, SEMICONDUCTOR DIODES (U)

THE OBJECTIVES OF THIS EVALUATION WERE TO (1) DEFINE COMMON FAILURE MODES; (2) DOCUMENT FAILURE ANALYSIS; AND (3) DEVELOP BETTER AND LOWER COST ELECTRICAL AND STRESS TEST TECHNIQUES FOR PREDICTING, ASSESSING, AND ASSURING THE RELIABILITY OF LSI MICROCIRCUITS. THE APPROACH TO THE EVALUATION INCLUDED A CANVASS OF THE INDUSTRY FOR FAILURE MODES EXPERIENCED, TESTS USED, AND AVAILABLE PROCESS AND LOGIC FUNCTION TYPES. NEXT, AN OPTIMIZED AND PRACTICAL SET OF ELECTRICAL TESTS AND ELECTRICAL-THERMAL STRESS TESTS WERE FORMULATED FOR A QUANTITY OF 595 DEVICES SELECTED HAVING HERMETICALLY SEALED PACKAGES AND MANUFACTURING DATE IN THE FIRST QUARTER OF 1971. PROCESS TYPES INCLUDED PMOS, PMOS ION IMPLANT, PMOS SILICON GATE, PMOS MOLYBDENUM GATE, CMOS, BIPOLAR, DISCRETIONARY WIRED BIPOLAR AND SCHOTTKY DIODE CLAMPED BIPOLAR. LOGIC FUNCTIONS INCLUDED A DECADE COUNTER, FIVE SHIFT REGISTERS, A DIGITAL MULTIPLIER, FIVE RANDOM ACCESS MEMORIES, AND A TIME BUFFER REGISTER. FOLLOWING THE STRESS TESTS, DEVICES WERE LIFE TESTED AT 125 C UNDER DYNAMIC EXCITATION, POWER AND LOAD. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 912 632 5/2 9/2
NAVAL ELECTRONICS LAB CENTER SAN DIEGO CALIF

ANALYSIS OF HARDWARE AND SOFTWARE STORAGE AND RETRIEVAL FUNCTIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL DOCUMENT,
JUL 73 52P SHEN,JOHN T. ;
REPT. NO. NELC-TD-259
PROJ: NELC-Z401

UNCLASSIFIED REPORT

DESCRIPTORS: (*INFORMATION RETRIEVAL, MEMORY DEVICES), (*DATA STORAGE SYSTEMS, COMPUTER PROGRAMS), DIGITAL COMPUTERS, DATA PROCESSING, COSTS, ELECTROMAGNETIC COMPATIBILITY, MAINTENANCE, RELIABILITY(ELECTRONICS), DATA, ALGORITHMS, COMPUTER LOGIC, SEQUENCES(MATHEMATICS), STATISTICAL ANALYSIS, INEQUALITIES, DISKS, SIMULATION, COMPILERS (U)
IDENTIFIERS: AN/UYK-7, COMPUTER HARDWARE, COMPUTER FILES, *COMPUTER PROGRAMS, COMPUTERIZED SIMULATION, DATA ACQUISITION, DATA BASES, DELAY TIME, FILE STRUCTURE, FIRMWARE, MAGNETIC DISK STORAGE, MAGNETIC DRUM STORAGE, COMMAND AND CONTROL SYSTEMS, NAVY, SHIPBOARD, TACTICAL INTELLIGENCE, PARALLEL PROCESSING (U)

THIS REPORT PRESENTS THE RESULTS OF AN ANALYSIS OF THE INFORMATION STORAGE AND RETRIEVAL (ISAR) FUNCTIONS OF SEVERAL NAVY ISAR SYSTEMS. THE ANALYSIS WAS PERFORMED TO PROVIDE FURTHER SUPPORT TO THE ADVANCED SOFTWARE TECHNOLOGY DIVISION FOR PROJECT 2175. IN BRIEF, THE GUIDING PHILOSOPHY OF PROJECT 2175 IS TO DETERMINE THE FEASIBILITY OF MECHANIZING STORAGE AND RETRIEVAL FUNCTIONS IN MODULAR BUILDING BLOCKS BY COMBINATIONS OF HARDWARE, FIRMWARE AND SOFTWARE. RECENT STUDIES HAVE BORNE WITNESS TO THE GROWING CONCERN WITH A NUMBER OF PROBLEMS INCIDENT TO THE ACQUISITION AND OPERATION OF COMPUTER-BASED STORAGE AND RETRIEVAL SYSTEMS. IN ESSENCE, THESE PROBLEMS INCLUDE THE FOLLOWING: (1)INCREASING SYSTEM DEVELOPMENT COSTS; (2) EXTENSIVE TIME REQUIRED TO ACQUIRE NEW SYSTEMS; (3)THE VARIETY OF INCOMPATIBLE SYSTEMS AND COMPONENTS; (4)EVOLVING REQUIREMENTS PRECIPITATED BY THE GROWING COMPLEXITY OF MODERN WARFARE; (5)INCREASING COSTS OF MAINTAINING MULTIPLE SYSTEMS AND COMPONENTS; (6)LIMITED RELIABILITY OF SYSTEM SOFTWARE AND (7)THE TREND TOWARD REDUCED FUNDING RESOURCES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 912 646 9/2 20/4
AIR FORCE ARMAMENT LAB EGLIN AFB FLA

A COMPUTER PROGRAM FOR EXTRACTING AERODYNAMIC DATA FROM MAGNETIC TAPE. (U)

DESCRIPTIVE NOTE: FINAL REPT. APR-JUN 73,
JUL 73 33P ROGERS,ROBERT M. ;
REPT. NO. AFATL-TR-73-147
PROJ: AF-670D

UNCLASSIFIED REPORT

DESCRIPTORS: (*COMPUTER PROGRAMS, AERODYNAMIC CHARACTERISTICS), WIND TUNNEL MODELS, TEST FACILITIES, DATA, DATA PROCESSING, MAGNETIC TAPE, DIGITAL COMPUTERS, SUBROUTINES, PROGRAMMING LANGUAGES, AUTOMATION, PUNCHED CARDS, AERODYNAMICS (U)
IDENTIFIERS: CDC 6600 COMPUTERS, *DATA ACQUISITION, *EXTRACTION, FORTRAN, FORTRAN 4 PROGRAMMING LANGUAGE (U)

THIS REPORT DESCRIBES A FORTRAN IV COMPUTER PROGRAM THAT EXTRACTS AERODYNAMIC DATA FROM A MAGNETIC TAPE PREPARED FROM DATA TAPES SUPPLIED BY WIND TUNNEL TEST FACILITIES. THE PROGRAM IS DESIGNED FOR USE ON A CDC 6600 COMPUTER SYSTEM ALONG WITH AN S-C 4020 COMPUTER RECORDER (PLOTTER). THE DATA SYSTEMS DEVELOPED BY THE ARNOLD ENGINEERING DEVELOPMENT CENTER IS USED AS A MODEL TO DESIGN THE DATA EXTRACTION STATEMENTS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD- 912 732 15/3.1 9/2
IBM FEDERAL SYSTEMS DIV GAITHERSBURG MD

PRELIMINARY BMD SOFTWARE DEVELOPMENT FOR IBM MULTIPROCESSING SYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 73 138P GILBERT,J. G. ;
CONTRACT: DAHC60-72-C-0091

UNCLASSIFIED REPORT

DESCRIPTORS: (*ANTIMISSILE DEFENSE SYSTEMS, DATA PROCESSING), COMPUTER PROGRAMMING, DIGITAL COMPUTERS, REAL TIME, COMPUTER PROGRAMS, SEARCH RADAR, ACQUISITION RADAR, RADAR TRACKING, FLOW CHARTING, SHIFT REGISTERS, SIMULATION, MEMORY DEVICES, SCHEDULING, SIMULATORS (U)
IDENTIFIERS: *COMPUTER PROGRAMS, HARDSITE DEFENSE, IBM 370 COMPUTERS, IBM 360 COMPUTERS, *COMPUTERS, *MULTIPLE OPERATION, PARALLEL PROCESSORS (U)

THIS FINAL TECHNICAL REPORT DESCRIBES THE ACHIEVEMENTS OF THE IBM FEDERAL SYSTEMS DIVISION OVER THE TECHNICAL PERFORMANCE PERIOD FOR THE CONTRACT. THIS REPORT IS MADE UP OF FOUR SECTIONS. SECTION I CONTAINS THE CONTRACT SUMMARY, THE CONTRACT SCOPE, AND THE CONCLUSIONS AND RECOMMENDATIONS DRAWN FROM THE RESULTS OF THE EFFORT. SECTION 2 PRESENTS A GENERAL DISCUSSION OF THE ROLE OF THE MULTIPROCESSOR IN BALLISTIC MISSILE DEFENSE APPLICATIONS. SECTION 3 CONTAINS A DESCRIPTION OF THE MPS HARDWARE. SECTION 4 PRESENTS THE DESCRIPTION OF THE SOFTWARE UTILIZED IN THE SIMULATION DEMONSTRATION AND THE RESULTS AND CONCLUSIONS OF THE SIMULATION DEMONSTRATION HELD AT THE ABMDA HAPDAR FACILITY ON 30 JUNE 1973. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD- 914 517 9/2 15/3.1 17/9
RAYTHEON CO WAYLAND MASS EQUIPMENT DIV

ADVANCED DIGITAL SIGNAL PROCESSOR DESIGN STUDY. VOLUME II. DESIGN CONCEPT. (U)

DESCRIPTIVE NOTE: FINAL REPT. 4 APR-4 NOV 73,
NOV 73 224P ALLEN,T. ;GLASS,J. ;HYNES,
R. ;PERKINS,D. ;
REPT. NO. ER73-4426-VOL-2
CONTRACT: DAHC60-73-C-0065
PROJ: DA-62304-A

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA PROCESSING, DIGITAL SYSTEMS), MEMORY DEVICES, PULSE COMPRESSION, MATCHED FILTERS, WAVEFORM GENERATORS, DIGITAL TO ANALOG CONVERTERS, BANDWIDTH, COMPUTER PROGRAMMING, DATA STORAGE SYSTEMS, INTERFACES, ANTIMISSILE DEFENSE SYSTEMS, MULTIPLEXING, TRAILING EDGE, RADAR, POWER SUPPLIES, RELIABILITY(ELECTRONICS), SEQUENCES(MATHEMATICS), ALGORITHMS, VIDEO SIGNALS, SPECIFICATIONS, BROADBAND, SHIFT REGISTERS, DETECTION, LEADING EDGES (U)
IDENTIFIERS: *SIGNAL PROCESSING, DATA MANAGEMENT, SIGNAL PROCESSING, LOCAL OSCILLATORS, FLIP FLOPS, FOURIER TRANSFORMATION, BUTTERWORTH FILTERS, RANDOM ACCESS MEMORIES, METAL OXIDE SEMICONDUCTORS, POST PROCESSORS (U)

THIS VOLUME DESCRIBES A DESIGN CONCEPT OF A DIGITAL SIGNAL PROCESSOR DESIGNED TO MEET THE SPECIFIED SYSTEM REQUIREMENTS. THE CONCEPT USES THE TECHNIQUES RECOMMENDED AS A RESULT OF THE STUDIES DESCRIBED IN VOLUME I. EACH OF THE FOLLOWING SUBSYSTEMS ARE DESCRIBED SEPARATELY: DIGITAL WAVEFORM GENERATOR, IF CONVERSION, INPUT DATA MANAGEMENT, MATCHED FILTER, POST PROCESSOR, TEST SEQUENCE CONTROLLER, AND CONTROL AND INTERFACE. IN ADDITION, A MECHANICAL DESIGN CONCEPT, THERMAL ANALYSIS, AND RELIABILITY ANALYSIS FOR THE CONCEPT DESCRIBED ARE INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO: /ZOM07

AD- 923 480 8/2 5/2 14/5
ARMY ENGINEER TOPOGRAPHIC LABS FORT BELVOIR VA

A SYSTEM FOR TOPOGRAPHIC INQUIRY. NUMBER 1. MICROGRAPHIC SUBSYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT. OCT 70-SEP 73, MAY 74 40P GUNTHER,ALDEN C. ;
REPT. NO. ETL-ETR-74-2
PROJ: DMA-4304

UNCLASSIFIED REPORT

DESCRIPTORS: (*TOPOGRAPHIC MAPS, DATA STORAGE SYSTEMS), (*MICROFORM, MANAGEMENT INFORMATION SYSTEMS), MANAGEMENT PLANNING AND CONTROL, DATA MANAGEMENT, TERRAIN INTELLIGENCE, INFORMATION RETRIEVAL, DATA REDUCTION, ACCURACY, DISTORTION, RESOLUTION, DISPLAY SYSTEMS, COMPUTER PROGRAMS, HANDLING, SPECIFICATIONS, GRAPHICS, DATA PROCESSING, DATA BASES, REMOTE TERMINALS, VIEWERS, DISPLAY SYSTEMS (U)
IDENTIFIERS: STOPIN(SYSTEM FOR TOPOGRAPHIC INQUIRY), SYSTEM FOR TOPOGRAPHIC INQUIRY, COMPUTER SOFTWARE, *TOPOGRAPHIC INFORMATION SYSTEMS, MICROGRAPHIC SYSTEMS (U)

THE PURPOSE OF THE DEVELOPMENT WAS TO DEMONSTRATE THE CONCEPT OF MICROFORM TOPOGRAPHIC DATA STORAGE AND TO DEVELOP A SOFTWARE PACKAGE TO CONTROL A MICROGRAPHIC SYSTEM. A COMMERCIALLY AVAILABLE SYSTEM WAS LEASED FOR EXPERIMENTATION, AND A SET OF SPECIFICATIONS FOR OPERATIONAL HARDWARE WAS DEVELOPED. A SOFTWARE DESCRIPTION, THE PROPOSED HARDWARE SPECIFICATIONS, AND A PILOT TEST OPERATION FLOWCHART ARE INCLUDED IN THE REPORT.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A000 226 9/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

A BINARY OUTPUT ELEMENT FOR LOGICAL AND SWITCHING DEVICES ON FERROMAGNETIC SINGLE CRYSTALS, (U)

FEB 74 10P BOYARCHENKOV,M. A. ; PALAGASHVILI,YA. SH. ;ROSENTHAL,YU. D. ; KHOMERIKI,O. K. ;
REPT. NO. FSTC-HT-23-1823-73

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: TRANS. OF AVTOMATIKA I TELEMEKHANIKA (USSR) N3 P185-187 1973.

DESCRIPTORS: *MAGNETIC DETECTORS, MAGNETIC DOMAINS, MEMORY DEVICES, FERROMAGNETIC MATERIALS, SINGLE CRYSTALS, LOGIC DEVICES, BINARY PROCESSORS, TRANSLATIONS, USSR (U)

THE ARTICLE DESCRIBES USES FOR DEVICES, BASED ON HALL'S DOMAIN DETECTOR, IN READ-OUT COMPUTER TECHNIQUES. THE GALVANOMAGNETIC METHOD IS MOST WIDELY USED BECAUSE OF ITS SIMPLICITY AND EASE OF ADAPTABILITY. RESULTS OF TESTING SHOWED THAT THESE DEVICES GIVE READINGS WHICH ARE NOT AFFECTED BY THE FIELD OF DISPLACEMENT, AND CAN BE USED AT HIGH TEMPERATURES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A000 242 14/5 9/2
ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

CERTAIN PROBLEMS IN THE DEVELOPMENT OF PHOTOCHROMATIC DEVICES FOR INFORMATION STORAGE AND REPRODUCTION, (U)

JUN 74 5P ASRATYAN,A. A. I
REPT. NO. FSTC-HT-23-0458-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: UNEDITED TRANS. OF MONO. AKTUALNYE TEKHNICHESKOI KIBERNETIKI, MOSCOW, 1972 P256-257.

DESCRIPTORS: *PHOTOCHROMISM, *PHOTOGRAPHIC RECORDING MEDIA, *DATA STORAGE SYSTEMS, ELECTROOPTICS, FIBER OPTICS, INFRARED RADIATION, TRANSLATIONS, USSR (U)
IDENTIFIERS: *PHOTOCHROMIC STORAGE SYSTEMS (U)

A DESCRIPTION IS PRESENTED OF A DEVICE FOR REPRODUCING AND STORING INFORMATION BY A PHOTOCHROMIC METHOD. INFORMATION IS FED INTO THE DEVICE WHERE IT UNDERGOES IRRADIATION PROCESSING. AS THE DEVICE TURNS, THE REQUIRED INFORMATION IS RECORDED AT ANY POINT DEPENDING ON THE RESOLUTION CAPABILITY OF A WAVEBEAM STRIP. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A000 294 9/2
PROBE CONSULTANTS INC PHOENIX ARIZ

THE PILER SYSTEM OF COMPUTER PROGRAM TRANSLATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 74 151P BARBE,PENNY ;
REPT. NO. PLR-020
CONTRACT: N00014-67-C-0472
PROJ: NR-049-233

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *COMPUTER PROGRAMMING, *TRANSLATORS, COMPILERS, INTERPRETERS, MEMORY DEVICES, MATHEMATICAL LOGIC (U)
IDENTIFIERS: *PILER TRANSLATOR, TRANSLATOR ROUTINES (U)

THE AUTOMATIC TRANSLATION OF COMPUTER PROGRAMS FROM ONE LANGUAGE TO ANOTHER IS THE ULTIMATE GOAL OF THIS RESEARCH PROJECT. THE TRANSLATION OF PROGRAMS IS A PRIMARY CONCERN OF USERS ANTICIPATING AN UPGRADING OR REPLACEMENT OF COMPUTER HARDWARE CURRENTLY IN USE. IT IS ALSO NECESSARY TO ENABLE MANY USERS TO SHARE OR PURCHASE APPLICATIONS PROGRAMS. ECONOMIC CONSIDERATIONS DICTATE THE GENERAL CHARACTERISTICS OF THE TRANSLATOR. BECAUSE OF THE VOLUME OF EXISTING PROGRAMS AND THE COST OF MANUAL REPROGRAMMING, THE TRANSLATOR SHOULD BE AS NEARLY AUTOMATIC AS POSSIBLE. BECAUSE OF THE COMPLEXITY OF SUCH A TRANSLATOR, WHICH MEANS HIGH DEVELOPMENTAL COST AND TIME, IT MUST BE AS GENERALIZED AS POSSIBLE. THE DESIGN OF THE TRANSLATING SYSTEM DEVELOPED THROUGH WORK ON THIS PROJECT STRESSES FLEXIBILITY IN THE USE OF THE SYSTEM, ALLOWING IT TO FULFILL ALTERNATE GOALS. PORTIONS OF THE SYSTEM MAY BE USED TO PROVIDE UNIFORM DOCUMENTATION OF PROGRAMS, OR AS DEBUGGING AIDS, OR FOR PROGRAM OR COMPILER EVALUATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A000 556 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

INTERFACE MESSAGE PROCESSORS FOR THE ARPA COMPUTER NETWORK. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. NO. 7, 1 JUL-30 SEP 74.
OCT 74 63P
REPT. NO. BBN-2913
CONTRACT: F08606-73-C-0027
PROJ: AF-2351

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *DATA PROCESSING TERMINALS, *COMMUNICATIONS NETWORKS, INTERFACES, MESSAGE PROCESSING, MEMORY DEVICES, SATELLITE COMMUNICATIONS (U)
IDENTIFIERS: *ARPA COMPUTER NETWORK, IMP(INTERFACE MESSAGE PROCESSORS), *INTERFACE MESSAGE PROCESSORS (U)

THE ARPA COMPUTER NETWORK PROVIDES A COMMUNICATION MEDIUM WHICH ALLOWS DISSIMILAR COMPUTERS (HOSTS) TO INTERCHANGE INFORMATION. EAST HOST IS CONNECTED TO AN INTERFACE MESSAGE PROCESSOR (IMP), AND IMPS ARE INTERCONNECTED BY LEASED COMMON CARRIER CIRCUITS. THERE IS FREQUENTLY NO DIRECT CIRCUIT BETWEEN TWO COMMUNICATING HOSTS, AND THE INTERMEDIATE IMPS STORE AND FORWARD THE INFORMATION. IMPS REGULARLY EXCHANGE INFORMATION WHICH IS USED TO ADAPT ROUTING TO CHANGING NETWORK CONDITIONS. IMPS ALSO REPORT A VARIETY OF PARAMETERS TO A NETWORK CONTROL CENTER, WHICH COORDINATES DIAGNOSIS AND REPAIR OF MALFUNCTIONS. (MODIFIED AUTHOR ABSTRACT) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 008 9/2 17/2
WHARTON SCHOOL OF FINANCE AND COMMERCE PHILADELPHIA PA
DEPT OF DECISION SCIENCES (MANAGEMENT)

OPTIMAL PROGRAM AND DATA LOCATIONS IN COMPUTER NETWORKS. (U)

74 23P MORGAN,HOWARD LEE ;LEVIN, KATRIEL DAN ;
REPT. NO. 74-10-01
CONTRACT: N00014-67-A-0216-07

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *COMMUNICATIONS NETWORKS, *COMPUTER PROGRAMS, *DATA STORAGE SYSTEMS, ALLOCATIONS, NETWORK FLOWS, LINEAR PROGRAMMING, OPTIMIZATION (U)
IDENTIFIERS: *COMPUTER NETWORKS, *FILE LOCATION MODELS (U)

AN OPTIMIZATION PROCEDURE FOR THE ALLOCATION OF PROGRAM AND DATA FILES IN A COMPUTER NETWORK IS PRESENTED. THIS ALGORITHM TAKES INTO ACCOUNT THE DEPENDENCIES BETWEEN FILES AND PROGRAMS SUCH AS OCCUR IN REAL HETEROGENEOUS COMPUTER NETWORKS. INSIGHTS INTO WHETHER OR NOT TO CONVERT PROGRAMS FROM ONE COMPUTER TO ANOTHER CAN ALSO BE GAINED FROM THE MODEL. A SEARCH PROCEDURE FOR THE FILE LOCATION PROBLEM IS DESCRIBED, ALONG WITH AN EXAMPLE AND A POSSIBLE APPLICATION OF THE MODEL. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 009 9/2 17/2
WHARTON SCHOOL OF FINANCE AND COMMERCE PHILADELPHIA PA
DEPT OF DECISION SCIENCES (MANAGEMENT)

ORGANIZING DISTRIBUTED DATA BASES IN COMPUTER NETWORKS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 74 229P LEVIN,KATRIEL DAN ;
REPT. NO. 74-09-01
CONTRACT: N00014-67-A-0216-0007
PROJ: NR-049-272

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *COMMUNICATIONS NETWORKS, *DATA STORAGE SYSTEMS, *COMPUTER PROGRAMMING, TIME SHARING, ALLOCATIONS, MATHEMATICAL PROGRAMMING, NETWORK FLOWS, MATHEMATICAL MODELS, THESES (U)
IDENTIFIERS: ARPA COMPUTER NETWORK, *COMPUTER NETWORKS, *FILE LOCATION MODELS (U)

THIS RESEARCH ADDRESSED THE FILE LOCATION PROBLEM FOR BOTH PROGRAM AND DATA SHARING. IN PARTICULAR, DEPENDENCIES BETWEEN PROGRAMS AND DATA FILES HAVE BEEN CONSIDERED, AS WELL AS THEIR IMPACT ON THE OPTIMAL DISTRIBUTION OF FILES IN THE NETWORK. HAVING REVIEWED EXISTING FILE LOCATION MODELS, A DISTINCTION BETWEEN DATA SHARING AND PROGRAM AND DATA SHARING WAS ESTABLISHED. SUBSEQUENTLY, THE PROBLEMS OF CREATING AND OPERATING DISTRIBUTED DATA BASES WERE CONSIDERED WITH BRIEF EXEMPLARY SOLUTIONS FOR THESE PROBLEMS BEING OFFERED. A THREE DIMENSIONAL PARTITIONING OF THE FILE LOCATION PROBLEM WAS EMPLOYED AS THE FRAMEWORK FOR THE MAIN BODY OF THIS RESEARCH. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 058 9/5 9/2 20/12
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

SURFACE STATE MEMORY IN SURFACE ACOUSTOELECTRIC CORRELATOR. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,
APR 74 4P BERS,ABRAHAM ;CAFARELLA,JOHN H. ;
REPT. NO. JA-4377
CONTRACT: F19628-73-C-0002
PROJ: DA-7-X-263304-D-215
MONITOR: ESD TR-74-277

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED PHYSICS LETTERS, V25 N3 P133-135, 1 AUG 74.
SUPPLEMENTARY NOTE:

DESCRIPTORS: *MEMORY DEVICES, *CORRELATORS, *SURFACE WAVES, TRAPS, ACOUSTIC SIGNALS, SEMICONDUCTORS, SURFACE PROPERTIES, PROPAGATION, TRANSDUCERS (U)
IDENTIFIERS: *SURFACE ACOUSTOELECTRIC CORRELATORS, *SURFACE STATE MEMORY, *ACOUSTIC SURFACE WAVE DEVICES (U)

WE SHOW THAT SURFACE ACOUSTIC SIGNALS CAN BE STORED IN AND READ FROM ELECTRON TRAPS AT THE SURFACE OF A SEMICONDUCTOR THAT IS ADJACENT TO THE PIEZOELECTRIC ON WHICH THE SURFACE WAVE PROPAGATES. THE OBSERVED MEMORY ACTION IS EXPLAINED BY THE LARGE-SIGNAL DYNAMICS OF THE CHARGING AND DISCHARGING OF THE TRAPS NEAR A SLIGHTLY DEPLETED SURFACE. THE STORAGE OF THE SIGNAL IS ACCOMPLISHED BY CREATING A ZERO-FREQUENCY K PATTERN WHICH FILLS THE TRAPS. THE READING OF THE SIGNAL CAN BE DONE BY EITHER CORRELATION OR CONVOLUTION WITH ANOTHER SURFACE ACOUSTIC SIGNAL. THIS CORRELATION DEVICE WITH INTERNAL MEMORY DOES NOT REQUIRE PRECISE SIGNAL TIMING, OPERATES WITH ALL SIGNALS AT THE SAME FREQUENCY, AND DOES NOT REQUIRE EXTERNAL TIME INVERSION OF THE REFERENCE SIGNAL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 182 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

FINDING MISTAKES IN THE OPERATION OF THE ADDRESS TRACK OF A DIGITAL COMPUTER WITH ONE-LEVEL PAGE MEMORY ORGANIZATION, (U)

OCT 74 15P METESHKIN,A. A. ;RYABUKHA, N. D. ;TOLSTOKHATKO,V. A. ;
REPT. NO. FTD-HT-23-1776-74
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF PRIBORY I SISTEMY AVTOMATIKI (USSR) N25 P129-135 1973, BY CAROL S. NACK.

DESCRIPTORS: *MEMORY DEVICES, LOGIC DEVICES, TRANSLATIONS, USSR (U)
IDENTIFIERS: PAGING, *COMPUTER STORAGE MANAGEMENT (U)

THE CHARACTERISTIC FEATURES OF THE ORGANIZATION OF THE COMPUTATIONAL PROCESS IN CONTEMPORARY TSVM'S ARE THE DYNAMIC MEMORY DISTRIBUTIONS AND MULTIPROGRAM MODE OF OPERATION, WHICH, AS A RULE, ASSUME PAGE MEMORY ORGANIZATION; THE PLACEMENT OF THE PROGRAM FOR THE SOLVED PROBLEM IN PAGES OF THE OPERATIVE MEMORY THAT ARE FREE AT A GIVEN POINT IN TIME; AND THE PROTECTION OF THE PROGRAM FROM THEIR MUTUAL INFLUENCE. THE PRESENT WORK EXAMINES ONE-LEVEL PAGE MEMORY IN WHICH THE ENTIRE MEMORY OF THE TSVM IS DIVIDED INTO SEGMENTS OF EQUAL DIMENSIONS - PHYSICAL PAGES, AND THE PROGRAM - INTO SEGMENTS OF THE SAME LENGTH - MATHEMATICAL PAGES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A001 953 9/2
PRINCETON UNIV N J DEPT OF ELECTRICAL ENGINEERING

A NEW APPROACH TO THE REALIZATION OF NONRECURSIVE DIGITAL FILTERS, (U)

MAR 73 10P PELED,ABRAHAM ;LIU,BEDE ;
CONTRACT: AF-AFOSR-2101-71
PROJ: AF-9749
TASK: 974906
MONITOR: AFOSR TR-74-1773

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON AUDIO AND ELECTROACOUSTICS, VAU-21 N6 P477-484 DEC 73.
SUPPLEMENTARY NOTE:

DESCRIPTORS: *DIGITAL FILTERS, *RECURSIVE FILTERS, *DATA STORAGE SYSTEMS, DELTA MODULATION, READ ONLY MEMORIES, ANALYSIS OF VARIANCE, COMPUTERIZED SIMULATION, ANALOG SIMULATION, ERRORS, SIGNAL TO NOISE RATIO (U)
IDENTIFIERS: NONRECURSIVE DIGITAL FILTERS (U)

A NEW REALIZATION OF NONRECURSIVE DIGITAL FILTERS THAT ARE USED TO OPERATE ON ANALOG SIGNALS IS PROPOSED. THIS REALIZATION REQUIRES NO MULTIPLICATIONS, AND EXPLOITS THE RELATIVE SIMPLICITY OF DELTA MODULATION AS A MEANS FOR ANALOG TO DIGITAL CONVERSION. THIS REALIZATION ALSO PERMITS A MECHANIZATION AS A VERY FAST DIGITAL FILTER, USING READ ONLY MEMORY (ROM). AN EVALUATION OF THIS REALIZATION IN TERMS OF COMPUTATION TIME STORAGE REQUIREMENTS AND MEAN-SQUARED ERROR IS PRESENTED. THESE CHARACTERISTICS ARE COMPARED WITH THEIR COUNTERPARTS FOR EXISTING REALIZATION METHODS OF NONRECURSIVE DIGITAL FILTERS. COMPUTER SIMULATION RESULTS THAT TEND TO CONFIRM THE THEORETICAL RESULTS OF THE ERROR ANALYSIS ARE INCLUDED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A001 994 9/2
RAND CORP SANTA MONICA CALIF

CONTROLLED TESTS FOR PERFORMANCE EVALUATION. (U)

JUN 73 12P LOCKETT,J. A. ;WHITE,A. R. ;
REPT. NO. P-5028

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PRESENTED AT AEC SCIENTIFIC COMPUTER INFORMATION EXCHANGE MEETING ON 3-4 MAY 73.

DESCRIPTORS: *CENTRAL PROCESSING UNITS, MEMORY DEVICES, ON LINE SYSTEMS, PERFORMANCE (U)
IDENTIFIERS: COMPUMETRICS, IBM 360/65 COMPUTERS, PERFORMANCE EVALUATION (U)

HARDWARE CONFIGURATION OF A COMPUTER SYSTEM MUST BE ACCOMPANIED BY EVALUATION OF ITS EFFECTS ON EACH CATEGORY OF USERS TO ENSURE GOOD PERFORMANCE. COMBINED ON-LINE/BATCH LOADS POSE A PROBLEM SINCE SEVERAL MEASURES MUST BE EMPLOYED. ACCOUNTING DATA, ARTIFICIAL STIMULATION, PROPER EXPERIMENTAL DESIGN AND ADEQUATE PLANNING CAN AID ANALYSTS DERIVE QUANTITATIVE, PROVABLE CONCLUSIONS IN THIS DIFFICULT LOAD ENVIRONMENT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 083 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER PROJECT TECHNICAL REPORT. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 AUG 73-28 FEB 74.
FEB 74 101P
CONTRACT: DAHC04-71-C-0011, ARPA ORDER-1731

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *DATA STORAGE SYSTEMS, MEMORY DEVICES, COMMUNICATIONS NETWORKS, INFORMATION RETRIEVAL, COMPUTER PROGRAMMING, PROGRAMMING LANGUAGES (U)
IDENTIFIERS: *DATACOMPUTER PROJECT, COMPUTER NETWORKS, ARPA COMPUTER NETWORK (U)

THE DATACOMPUTER SYSTEM IS BEING DESIGNED AS A LARGE-SCALE DATA STORAGE UTILITY TO BE ACCESSED FROM REMOTE COMPUTERS ON THE ARPANET AND, POTENTIALLY, ON OTHER NETWORKS. THE DEVELOPMENT IS PHASED, WITH EACH SUCCESSIVE RELEASE OF THE SYSTEM OFFERING INCREASED CAPABILITIES TO USERS. DURING THE PRESENT REPORTING PERIOD, THE SECOND RELEASE OF THE SYSTEM BECAME OPERATIONAL. THIS RELEASE, WHILE STILL PRIMITIVE IN MANY RESPECTS, IS BEGINNING TO PROVIDE EXPERIENCE WITH ACTUAL APPLICATIONS AND USER PROGRAMS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 189 9/2
RAND CORP SANTA MONICA CALIF

COMPUTERS AND SOCIETY: THE TECHNOLOGICAL SETTING, (U)

OCT 73 34P WARE,WILLIS H. ;
REPT. NO. P-5094

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER LOGIC, *MEMORY DEVICES, COMPUTATIONS, FORECASTING, LOGIC CIRCUITS, TECHNOLOGY, COST ANALYSIS (U)
IDENTIFIERS: LOGIC DESIGN, COMPUTER STORAGE MANAGEMENT, LARGE SCALE INTEGRATED CIRCUITS (U)

THIS PAPER IS INTENDED TO GIVE ONLY IMPRESSIONS OF WHERE COMPUTING TECHNOLOGY IS GOING AND TO GIVE A FLAVOR OF WHAT IT CAN MEAN TO SOCIETY, TO VARIOUS PROFESSIONS AND TO THE INDIVIDUAL. IT WILL CONCENTRATE ON TWO ASPECTS: THE SO-CALLED LOGIC TECHNOLOGY BECAUSE IT IS AN INDICATOR OF HOW FAST A COMPUTER CAN OPERATE AND IS THEREFORE AN APPROXIMATE MEASURE OF THE GROSS COMPUTING HORSEPOWER THAT CAN BE BUILT; AND FILE OR STORAGE TECHNOLOGY BECAUSE IT DETERMINES HOW MUCH DATA A COMPUTER CAN HAVE DIRECT AND CONVENIENT ACCESS TO. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A002 481 9/2 17/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

TERMINAL INTERFACE MESSAGE PROCESSOR. THE BBN TIP HARDWARE MANUAL. (U)

NOV 74 106P
REPT. NO. BBN-2184
CONTRACT: DAHC15-69-C-0179, F08606-73-C-0027

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-740 798.

DESCRIPTORS: *COMMUNICATIONS NETWORKS, *DATA PROCESSING TERMINALS, *MESSAGE PROCESSING, INTERFACES, MODEMS, MEMORY DEVICES, TIME SHARING (U)
IDENTIFIERS: TIP(TERMINAL INTERFACE PROCESSOR), *TERMINAL INTERFACE PROCESSOR, *ARPA COMPUTER NETWORK, *COMPUTER NETWORKS (U)

THE BBN TERMINAL INTERFACE MESSAGE PROCESSOR (TIP) PROVIDES A MEANS FOR CONNECTING UP TO 63 TERMINAL DEVICES TO THE ARPA NETWORK. THE TERMINAL INTERFACE SPECIFICATION CONFORMS TO THE EIA STANDARD RS232C, WHICH PERMITS DIRECT CONNECTION TO MOST DATA MODEMS. IN ADDITION TO FULL DUPLEX, SERIAL DATA TRANSMISSION, EACH OF THE 64 PORTS PROVIDES 4 PROGRAM-SETTABLE CONTROL LINES AND MONITORS 6 EXTERNAL STATUS LINES; THESE LINES ARE USEFUL IN DEALING WITH MODEMS OR OTHER COMPATIBLE I/O DEVICES. DATA FORMAT IS TELETYPE COMPATIBLE, THAT IS, CHARACTER ORIENTED WITH START AND STOP BITS. THE TIP HANDLES ALL ROUTINE OPERATIONS OF TIMING AND SEQUENCING. ALL LINE PARAMETERS, SUCH AS SPEED AND CHARACTER SIZE, ARE PROGRAM SETTABLE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 694 9/2
GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT
SCHENECTADY N Y

DESIGN, FABRICATION, AND EVALUATION OF AN ELECTRON BEAM ADDRESSABLE HIGH INFORMATION DENSITY MEMORY TUBE. (U)

DESCRIPTIVE NOTE: REPT. NO. 8 (FINAL), 1 FEB 72-30 APR 74,
OCT 74 104P LEMMOND,CHARLES Q. ;HUGHES, WILLIAM C. ;POSSIN,GEORGE E. ;WILSON,RONALD H. ;FISHER,JAMES K. ;
REPT. NO. GE-SRD-74-117
CONTRACT: DAAB07-72-C-0098
PROJ: DA-1-H-631024-D-252
TASK: 1-H-631024-D-25203
MONITOR: ECOM 0098-72-F

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MEMORY DEVICES, *STORAGE TUBES, *RANDOM ACCESS COMPUTER STORAGE, ELECTRON OPTICS, WAVEFORMS, FABRICATION, PERFORMANCE (U)
IDENTIFIERS: DESIGN (U)

DURING THIS CONTRACT TWO DIFFERENT ELECTRON BEAM MEMORY TUBE DESIGNS WERE CONSTRUCTED. TUBES OF THE PHASE I AND PHASE II DESIGNS WERE SUCCESSFULLY OPERATED IN A DIGITAL MEMORY SYSTEM. TUBE OPERATION AT A 10 MBIT RATE WAS THE ONLY CONTRACT GOAL NOT DEMONSTRATED. ELECTRONIC CIRCUIT TEST EQUIPMENT DESIGN LIMITED WRITE/READ RATES TO 5 MBITS/SEC. WITH THE DISTRIBUTION OF THIS REPORT, AND THE DELIVERY OF ONE PHASE II BEAMOS TUBE TO THE U.S. ARMY ELECTRONICS COMMAND, THE CONTRACT WILL BE COMPLETE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 810 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

EXCHANGE CIRCUITS BETWEEN BRANCHES OF PARALLEL ALGORITHMS. (U)

DEC 74 12P KOSAREV,YU. G. ;
REPT. NO. FTD-HT-23-249-75
PROJ: FTD-T74-05-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF VYCHISLITELNYE SISTEMY (USSR) N51 P70-75 1972, BY DALE A. BOSTAD.

DESCRIPTORS: *PARALLEL PROCESSORS, *LOGIC CIRCUITS, COMPUTATIONS, TRANSLATIONS, USSR (U)

EXCHANGE CIRCUITS BETWEEN BRANCHES OF PARALLEL ALGORITHMS--TRANSLATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A002 835 17/2 9/2
NORTH ELECTRIC CO GALION OHIO GOVERNMENT PRODUCTS DIV

COMMUNICATIONS PROCESSOR SYSTEM (CPS)
MODELING APPROACH. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. OCT 73-AUG 74,
NOV 74 59P MONROE,MARVIN ;
CONTRACT: F30602-73-C-0314
MONITOR: RADC TR-74-290

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *COMMUNICATION EQUIPMENT, *DATA PROCESSING, SIGNAL PROCESSING, MESSAGE PROCESSING, MEMORY DEVICES, TIME SHARING, SWITCHING CIRCUITS, MATHEMATICAL MODELS (U)
IDENTIFIERS: COMMUNICATIONS PROCESSOR SYSTEM (U)

THE PURPOSE OF THE COMMUNICATIONS PROCESSOR SYSTEM STUDY IS TO DEVELOP A FAMILY OF COMMON COMPUTER PROCESSOR MODULES SUITED TO FUTURE MILITARY REQUIREMENTS OF MULTI-PURPOSE SWITCHING, INCLUDING DATA AND VOICE. ONE TASK IN THIS STUDY IS TO VERIFY THE DESIGN OF A PROCESSOR BY COMPUTER MODELING. THIS REPORT PRESENTS A DISCUSSION OF THE REQUIREMENTS OF AN ADEQUATE MODEL, DESCRIBES THE TECHNIQUES CHOSEN TO FULFILL THE STUDY OBJECTIVES, AND STATES THE PLANS REGARDING THE EXTENT TO WHICH THESE TECHNIQUES WILL BE APPLIED DURING THIS STUDY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A002 849 20/6 14/5 9/2
HARRIS CORP MELBOURNE FLA ELECTRONIC SYSTEMS DIV

REAL TIME HOLOGRAPHIC RECORDING MATERIALS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 OCT 73-30 JUN 74, NOV 74 290P ZECH,R. G. ;RALSTON,LYNDA M. ;SHARECK,M. W. ;
CONTRACT: F30602-74-C-0030
MONITOR: RADC TR-74-287

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *DATA STORAGE SYSTEMS, *OPTICAL MATERIALS, *MICROFILM, HOLOGRAPHY, OPTICAL EQUIPMENT, PHOTOGRAPHIC RECORDING SYSTEMS, PHOTOGRAPHIC RECORDING MEDIA, OPTICAL PROPERTIES, PERFORMANCE(ENGINEERING), PHOTOGRAPHIC FILM (U)
IDENTIFIERS: *HOLOGRAPHIC INFORMATION STORAGE, *OPTICAL DATA PROCESSING (U)

A NUMBER OF HIGH-QUALITY, DRY-WORKING RECORDING MATERIALS WERE EVALUATED TO DETERMINE THEIR SUITABILITY FOR HOLOGRAPHIC DATA STORAGE AND OPTICAL DATA PROCESSING APPLICATIONS. SENSITOMETRIC, HOLOGRAPHIC, AND SYSTEMS DATA WERE GENERATED. WITH THE RADC-SPONSORED HRMR SYSTEM A FRAME OF REFERENCE, SEVERAL FILM/SYSTEMS STUDIES WERE COMPLETED THAT HAVE AN IMPORTANT PRACTICAL IMPACT. IN PARTICULAR, THE FEASIBILITY OF MAKING HIGH-QUALITY FICHE REPLICATIONS USING STRAIGHTFORWARD CONTACT COPYING TECHNIQUES WAS DEMONSTRATED. THE OVERALL CONCLUSION OF THE STUDY WAS THAT SOME DRY-WORKING RECORDING MATERIALS COULD BECOME SYSTEMS QUALIFIED IN THE NEAR-TERM. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A002 980 9/2
NAVAL ORDNANCE LAB WHITE OAK MD

PROGRESS TOWARD THE CROSSTIE MEMORY.
II. (U)

DESCRIPTIVE NOTE: ANNUAL REPT. NO. 2,
OCT 74 43P SCHWEE,L. J. ;IRONS,H.
R. ;ANDERSON,W. E. ;SERY,R. S. ;
SCHARNHORST,K. P. ;
REPT. NO. NOLTR-74-176
PROJ: A310-310B/WR02-103, NOL-0824/RR011-02
TASK: A310-310B/WR02-103-001, NOL-0824/RR011-02-02

UNCLASSIFIED REPORT

DESCRIPTORS: *THIN FILM STORAGE DEVICES, *RANDOM ACCESS COMPUTER STORAGE, SHIFT REGISTERS, MICROCIRCUITS, MAGNETIC DOMAINS, DOMAIN WALLS, OPTICAL WAVEGUIDES, KERR MAGNETOOPTICAL EFFECT (U)
IDENTIFIERS: BORAM(BLOCK ORIENTED RANDOM ACCESS MEMORIES), BLOCK ORIENTED RANDOM ACCESS MEMORIES, MAGNETIC FILM MEMORIES, MAGNETORESISTIVITY, MAGNETIC BUBBLE DOMAINS (U)

THE CROSSTIE MEMORY IS INTENDED FOR USE AS A BLOCK ORIENTED RANDOM ACCESS MEMORY (BORAM) OR FAST AUXILIARY MEMORY (FAM). THE ADVANTAGES OF THE CROSSTIE MEMORY ARE SPEED, LOW POWER, HIGH BIT DENSITY, NONVOLATILITY, A WIDE TEMPERATURE RANGE OF OPERATION, LOW COST, AND AVAILABLE TECHNOLOGY. THIS REPORT CONTAINS INFORMATION ON WALL PLACEMENT TECHNIQUES, DYNAMIC NUCLEATION THRESHOLDS, PROPAGATION, MICROCIRCUITRY, DOMAIN WALL OBSERVATION, AND DETECTION. MICROCIRCUITRY FOR SHIFTING DATA HAS BEEN DEVELOPED AND TESTED FOR 32-BIT EXPERIMENTAL SHIFT REGISTERS. THE INFORMATION IS OBSERVED USING THE MAGNETOOPTIC KERR EFFECT. DETECTION IS CONSIDERED FEASIBLE USING EITHER MAGNETORESISTANCE OR GUIDED WAVE OPTICS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A003 022 9/2 12/1
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

CONSTRUCTION OF GENERALIZED LOGICAL MODEL OF AUTOMATS WITH MEMORY. (U)

NOV 74 18P KAZNACHEEV,V. I. ;MURAVYEV, N. P. ;
REPT. NO. FTD-HC-23-2870-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. VYCHISLITELNAYA TEKNHIKA V MASHINOSTROENII, MINSK, 1970 P23-30.

DESCRIPTORS: *MEMORY DEVICES, *MATHEMATICAL LOGIC, BOOLEAN ALGEBRA, LOGIC DEVICES, TRANSLATIONS, USSR (U)
IDENTIFIERS: AUTOMATA THEORY (U)

AN ANALYTICAL METHOD OF CONSTRUCTING A GENERALIZED LOGICAL MODEL (M-K) OF POLAR SYNCHRONIC AND ASYNCHRONIC AUTOMATS WITH MEMORY IS PRESENTED. THE POSSIBILITIES OF USING IT DURING THE CONSTRUCTION OF TESTS, PROCEDURES OF CONTROL AND FOR THE DIAGNOSIS OF INACCURACIES ARE ALSO EXAMINED. A METHOD OF SOLVING THESE PROBLEMS WITH THE HELP OF GENERALIZED LOGIC MODEL IS DESCRIBED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A003 253 9/2
INTEGRATED SYSTEMS SUPPORT INC FALLS CHURCH VA

MULTICOMMAND NETWORKS PROJECTS FOR THE U.S. ARMY COMPUTER SYSTEMS COMMAND. VOLUME I. SURVEY PLAN FOR SELECTED ARMY DATA PROCESSING INSTALLATIONS. (U)

DESCRIPTIVE NOTE: FINAL REPT.
DEC 74 117P
CONTRACT: DAAK02-72-D-0529
PROJ: DA-SX-865803-MY-10
TASK: SX-865803-MY-1003
MONITOR: USACSC AT-74-06-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *DATA PROCESSING, ARMY OPERATIONS, ARMY EQUIPMENT, ARMY TRAINING, COMPUTER APPLICATIONS, COST ANALYSIS, MEMORY DEVICES, LOGISTICS SUPPORT, MANAGEMENT INFORMATION SYSTEMS (U)
IDENTIFIERS: PERFORMANCE EVALUATION (U)

THE PURPOSE OF THIS THREE-VOLUME REPORT IS TO GENERATE MEDIUM AND LONG-RANGE SOLUTIONS TO THE PROBLEM OF OVERLOADING DATA PROCESSING INSTALLATIONS THAT ARE PROVIDING SERVICES TO THE INSTALLATION STAFFS AND OTHER SUPPORTED ACTIVITIES. VOLUME 1 DEFINES THE DATA REQUIRED TO SUPPORT ANALYSIS, SIMULATION, AND CONFIGURATION DESIGN. IT PROVIDES FOR THE ORGANIZATION, TOOLS, SCHEDULE, AND PROCEDURES NECESSARY TO COLLECT, CORRELATE, ANALYZE AND USE THE REQUIRED DATA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A003 414 9/2
MITRE CORP BEDFORD MASS

EXPERIENCES WITH AN OPERATIONAL ASSOCIATIVE PROCESSOR. (U)

NOV 74 37P BALDAUF,D. L. ;
REPT. NO. MTR-2879
CONTRACT: F19628-73-C-0001
MONITOR: ESD TR-74-199

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *ASSOCIATIVE PROCESSING, *PARALLEL PROCESSING, MEMORY DEVICES, INTERFACES, COMPUTATIONS, MATHEMATICAL LOGIC, COMPUTER PROGRAMMING, SPACE SURVEILLANCE SYSTEMS (U)
IDENTIFIERS: STARAN SYSTEM (U)

A SPACE OBJECT POSITION PREDICTION PROGRAM WAS IMPLEMENTED ON THE STARAN ASSOCIATIVE ARRAY PROCESSOR (AP) INSTALLED AT THE ROME AIR DEVELOPMENT CENTER (RADC), NEW YORK. THIS DOCUMENT OUTLINES THE EXPERIENCE GAINED FROM THIS TASK. A SECTION IS DEVOTED TO AN ANALYSIS OF THE TIME AND EFFORT REQUIRED TO IMPLEMENT THE PROGRAM. EMPHASIS IS GIVEN TO THE PROGRAM DESIGN AND ARRAY LAYOUT PHASE. SYSTEMATIC (I.E., INDEPENDENT OF THE SPECIFIC PROGRAM) AND APPLICATION-RELATED CAPABILITIES AND LIMITATIONS ARE DISCUSSED. AN ANALYSIS OF THE RADCAP SYSTEM FROM A USER'S VIEWPOINT IS ALSO PRESENTED. THE LATTER PART OF THE PAPER DEALS WITH RECOMMENDATIONS FOR AN APPROVED STARAN SYSTEM (HARDWARE AND SOFTWARE) AND AN IMPROVED HOST COMPUTER INTERFACE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A003 715 9/2
MICHIGAN UNIV ANN ARBOR DEPT OF INDUSTRIAL AND OPERATIONS ENGINEERING

A DATA DESCRIPTION LANGUAGE APPROACH TO FILE TRANSLATION, (U)

MAR 74 19P MERTEN,ALAN G. ;FRY,JAMES P. ;

REPT. NO. ISDOS-WORKING PAPER-93, DATA TRANS-WORKING PAPER-304
CONTRACT: DCA100-72-C-0019, AF-AFOSR-2219-72
PROJ: AF-9769
TASK: 976902
MONITOR: AFOSR TR-75-0038

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA STORAGE SYSTEMS, *TRANSLATORS, DATA MANAGEMENT, COMPUTER PROGRAMMING (U)
IDENTIFIERS: *DATA TRANSLATION (U)

DATA TRANSLATION IS THE PROCESS WHEREBY INFORMATION (DATA) STORED BY ONE COMPUTER ON FILES IN SOME PARTICULAR STRUCTURE MAY BE TRANSFORMED SO THAT THEY COULD BE READ BY ANOTHER COMPUTER (POSSIBLY MANUFACTURED BY ANOTHER SUPPLIER, AND HENCE, NORMALLY INCOMPATIBLE) ACCORDING TO SOME OTHER FILE STRUCTURE. THE OVERALL RESEARCH GOAL IS TO DEVELOP A GENERALIZED METHODOLOGY FOR DATA TRANSLATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A003 737 9/2
MICHIGAN UNIV ANN ARBOR DEPT OF INDUSTRIAL AND OPERATIONS ENGINEERING

ON THE IMPLEMENTATION OF A PHYSICAL DATA MODEL FOR TRANSLATION. (U)

MAY 74 25P FRY,JAMES P. ;
REPT. NO. DATA TRANS-WORKING PAPER-6.05
CONTRACT: AF-AFOSR-2219-72
PROJ: AF-9769
TASK: 976902
MONITOR: AFOSR TR-75-0036

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA STORAGE SYSTEMS, *TRANSLATORS, COMPUTER PROGRAMMING, MATHEMATICAL LOGIC (U)
IDENTIFIERS: *DATA TRANSLATION (U)

THE CENTRAL THESIS OF THIS PAPER IS THE DEVELOPMENT OF A PHYSICAL MODEL FOR STORED-DATA. TO THIS END, THE PAPER REPORTS ON THE IMPLEMENTATION OF A PHYSICAL DATA MODEL FOR THE UNIVERSITY OF MICHIGAN DATA TRANSLATOR. FIRST, THE EVOLUTION OF DATA MODELS FOR TRANSLATION IS TRACED AND THE RELEVANT LITERATURE IS REVIEWED. IN SECTION 3 THE MODEL IS DESCRIBED USING A TOP-DOWN METHODOLOGY. THE BASIC DESIGN CONSIDERATIONS ARE REVIEWED AND THE IMPLEMENTATION DETAILS PRESENTED. THIS SECTION ALSO DESCRIBES THE UTILIZATION OF THE MODEL IN THE TRANSLATION PROCESS. SECTION 4 CONCLUDES THE PAPER BY PRESENTING SOME OBSERVATIONS ON THE IMPLEMENTATION OF PHYSICAL DATA MODELS FOR DATA TRANSLATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A003 987 9/2
PRINCETON UNIV N J DEPT OF ELECTRICAL ENGINEERING

SOME NEW REALIZATIONS OF DEDICATED HARDWARE DIGITAL SIGNAL PROCESSORS. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
OCT 74 7P PELED,A. ;LIU,B. ;
CONTRACT: AF-AFOSR-2101-71, NSF-GK-24187
PROJ: AF-9749
TASK: 974906
MONITOR: AFOSR TR-74-1898

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: PREPARED IN COOPERATION WITH IBM THOMAS J. WATSON RESEARCH CENTER, YORKTOWN HEIGHTS, N.Y. PUB. IN PROCEEDINGS OF IEEE ELECTRONICS AND AEROSPACE SYSTEMS CONVENTION (EASCON) RECORD, WASHINGTON, D.C., OCT 74, P464-468 OCT 74.

DESCRIPTORS: *SIGNAL PROCESSING, *DIGITAL FILTERS, FOURIER TRANSFORMATION, MEMORY DEVICES, SEMICONDUCTOR DEVICES (U)
IDENTIFIERS: *FASTT FOURIER TRANSFORM, SEMICONDUCTOR COMPUTER STORAGE (U)

THE SIGNIFICANT BREAKTHROUGHS IN THE AREA OF SEMICONDUCTOR TECHNOLOGY HAVE OPENED UP NEW OPTIONS FOR THE IMPLEMENTATION OF DIGITAL SIGNAL PROCESSORS. THE AUTHORS SUGGEST SOME NEW HARDWARE REALIZATIONS OF SUCH DEDICATED PROCESSORS THAT CAPITALIZE ON THE ADVANCES IN SEMICONDUCTOR MEMORY TECHNOLOGY TO PRODUCE REALIZATIONS THAT HAVE A SIGNIFICANTLY LOWER PACKAGE COUNT AND POWER CONSUMPTION AND ALSO MAKE POSSIBLE HIGHER SPEEDS OF OPERATION. THE AUTHORS SPECIFICALLY DISCUSS THE REALIZATION OF DIGITAL FILTERS AND HIGH SPEED FAST FOURIER TRANSFORMERS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A004 180 9/2
NAVAL RESEARCH LAB WASHINGTON D C

A FORTRAN SUBROUTINE FOR UNPACKING AND PACKING BINARY DATA. (U)

DESCRIPTIVE NOTE: MEMORANDUM REPT.,
DEC 74 14P PHILLIPS,GARY W. ;
REPT. NO. NRL-MR-2951, NRL-COMPUTER BULL-41
PROJ: NRL-66H01-48

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *DATA STORAGE SYSTEMS, DATA PROCESSING, FORTRAN (U)
IDENTIFIERS: PACKING(DATA), UNPACKING(DATA) (U)

THIS IS A GENERAL PURPOSE ROUTINE TO UNPACK DATA STORED IN CORE IN PACKED BINARY FORMAT OR TO PACK BINARY DATA STORED WORD FOR WORD IN AN ARRAY. THE DATA MUST BE STORED IN BYTES WHICH ARE A MULTIPLE OF THREE BITS IN LENGTH WITH A MINIMUM LENGTH OF 3 BITS AND A MAXIMUM OF 48 BITS. IT IS USEFUL FOR UNPACKING DATA READ IN PACKED BINARY FORM AND SORTING IT INTO AN ARRAY SO AS TO BE CONVENIENT FOR FURTHER PROCESSING BY A FORTRAN PROGRAM, OR FOR PREPARING DATA FROM AN ARRAY FOR WRITING OUT IN A COMPACT FORM, OR POSSIBLY FOR INTERMEDIATE STORAGE OF LARGE ARRAYS DURING EXECUTION OF A PROGRAM IN ORDER TO SAVE CORE SPACE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 331 9/2 6/4
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER SCIENCE

A MEMORY-PROCESS MODEL OF SYMBOLIC ASSIMILATION. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
APR 74 291P MANN,WILLIAM C. I
CONTRACT: F44620-73-C-0074, DARPA ORDER-2466
MONITOR: AFOSR TR-75-0132

UNCLASSIFIED REPORT

DESCRIPTORS: *ASSIMILATION, *COMPUTER APPLICATIONS, *ARTIFICIAL INTELLIGENCE, PROBLEM SOLVING, INFORMATION PROCESSING, MEMORY DEVICES, HEURISTIC METHODS, THESES (U)
IDENTIFIERS: DIRECTED GRAPHS, GRAPH THEORY, SLATE SYSTEM, SELF ORGANIZING SYSTEMS, SYMBOLIC PROGRAMMING (U)

THE REPORT DESCRIBES RESEARCH ON PROBLEMS OF USING KNOWLEDGE TO MAKE AVAILABLE INFORMATION USEFUL, WHICH IS CALLED 'ASSIMILATION' PROBLEMS. THE RESULTING THEORY CONTRIBUTES TO PSYCHOLOGY AS A MODEL OF HUMAN SHORT TERM MEMORY, AND TO INFORMATION SCIENCE AS AN EFFECTIVE COLLECTION OF NEW GENERAL METHODS. THE VEHICLE FOR STUDY IS A COMPUTER PROGRAM, CALLED THE SLATE SYSTEM, WHICH MANIPULATES KNOWLEDGE AND EXPERIENCE REPRESENTED AS LABELED DIRECTED GRAPHS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 382 9/2 8/2
PRC INFORMATION SCIENCES CO MCLEAN VA

CARTOGRAPHIC DATA BASE HIERARCHY. VOLUME I. SYSTEMS ANALYSIS AND DESIGN. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-AUG 73, SEP 74 87P ALVAREZ,DONALD T. ;TAYLOR, M. LYNN ;
REPT. NO. PRC-R-1690-VOL-1
CONTRACT: F30602-72-C-0457
MONITOR: RADC TR-74-228-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD/A-004 383.

DESCRIPTORS: *MAPPING, *DATA STORAGE SYSTEMS, DATA BASES, DATA PROCESSING, SYSTEMS ANALYSIS, COMPUTER PROGRAMMING, EXPERIMENTAL DESIGN, INFORMATION RETRIEVAL (U)
IDENTIFIERS: HIS 635 COMPUTERS, COBOL (U)

THE OBJECTIVE OF THE CARTOGRAPHIC DATA BASE HIERARCHY PROJECT WAS TO ANALYZE, DESIGN, IMPLEMENT, AND TEST AN EXPERIMENTAL DATA BASE SYSTEM WHICH EMPLOYS A HIERARCHICAL ENCODING SCHEME. HIGHLIGHTS OF THE IMPLEMENTED SYSTEM INCLUDE THE FOLLOWING. DESIGN IS BASED ON A GENERALIZED FEATURE CLASSIFICATION SYSTEM WHICH ALLOWS FOR DETAILED DESCRIPTION OF CARTOGRAPHIC FEATURES. THE CLASSIFICATION SYSTEM IS COMPOSED OF FEATURE CLASSES, TYPES, SUB-TYPES, EIGHT SPECIAL DESCRIPTORS, SPECIAL NUMERIC, FEATURE NAME, FREE TEXT COMMENT, AND REFERENCES TO SOURCE MATERIALS. IMPLEMENTATION, FOR EXPERIMENTAL PURPOSES, IS ON THE HONEYWELL 635 COMPUTER SYSTEM USING INTEGRATED DATA STORE (IDS) FOR DATA MANAGEMENT SERVICES, AND IS WRITTEN IN THE COBOL LANGUAGE. FUNCTIONAL CAPABILITIES INCLUDE LOADING, RETRIEVAL, REMOTE QUERY, DELETION, AND MODIFICATION. REMOTE QUERY CAPABILITY ALLOWS A USER TO INTERACTIVELY COMMUNICATE WITH THE CDB THROUGH A REMOTE TERMINAL FOR PURPOSES OF ACCESSING AND RETRIEVING CARTOGRAPHIC INFORMATION. HIERARCHICAL DATA STRUCTURE WHICH PROVIDES FOR FOUR GEOGRAPHIC SEGMENTATION LEVELS, TWO LEVELS OF FEATURE SEGMENTATION, AND TWO LEVELS OF FEATURE DESCRIPTION (I.E., SUBJECTIVE AND LOCATIONAL). STORAGE OF GEOGRAPHIC COORDINATE STRINGS IN A COMPACT INCREMENTAL FORMAT ALLOWING FOR VARIABLE DATA RESOLUTIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 383 9/2 8/2
PRC INFORMATION SCIENCES CO MCLEAN VA

CARTOGRAPHIC DATA BASE HIERARCHY. VOLUME II. SYSTEM IMPLEMENTATION AND TESTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-AUG 73, SEP 74 152P ALVAREZ,DONALD T. ;TAYLOR, M. LYNN ;VIRKLER,GARY W. ;
REPT. NO. PRC-R-1690-VOL-2
CONTRACT: F30602-72-C-0457
MONITOR: RADC TR-74-228-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD/A-004 382, AND VOLUME 3, AD/A-004 384.

DESCRIPTORS: *MAPPING, *DATA STORAGE SYSTEMS, DATA BASES, DATA PROCESSING, SYSTEMS ANALYSIS, COMPUTER PROGRAMMING, EXPERIMENTAL DESIGN, INFORMATION RETRIEVAL, MEMORY DEVICES, TEST METHODS (U)
IDENTIFIERS: HIS 635 COMPUTER, COBOL (U)

THE PURPOSE OF FINAL TECHNICAL REPORT, VOLUME II, IS TO DESCRIBE THE DATA BASE SYSTEM IMPLEMENTED, INCLUDING: DATA HIERARCHY AND RECORD STRUCTURE, DATA BASE CONTENTS, HARDWARE SYSTEM USED, SOFTWARE MODULES DEVELOPED, DIRECTIONS FOR SYSTEM USERS, AND SUMMARY RESULTS OF SYSTEM TESTING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A004 384 9/2 8/2
PRC INFORMATION SCIENCES CO MCLEAN VA

CARTOGRAPHIC DATA BASE HIERARCHY. VOLUME III. PROGRAM DOCUMENTATION. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUN 72-AUG 73, SEP 74 123P ALVAREZ,DONALD T. ;TAYLOR, M. LYNN ;VIRKLER,GARY W. ;
REPT. NO. PRC-R-1690-VOL-3
CONTRACT: F30602-72-C-0457
MONITOR: RADC TR-74-228-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD/A-004 383.

DESCRIPTORS: *MAPPING, *DATA STORAGE SYSTEMS, DATA BASES, DATA PROCESSING, SYSTEMS ANALYSIS, COMPUTER PROGRAMMING, EXPERIMENTAL DESIGN, INFORMATION RETRIEVAL (U)
IDENTIFIERS: HIS 635 COMPUTERS, COBOL (U)

THE PURPOSE OF FINAL TECHNICAL REPORT, VOLUME III, IS TO PRESENT THE EXPERIMENTAL CDB SOFTWARE OPERATING ENVIRONMENT AND PROGRAM DOCUMENTATION. SECTION II OF THIS VOLUME DESCRIBES THE OPERATIONAL ENVIRONMENT OF THE CDB SYSTEM INCLUDING THE SOFTWARE CONFIGURATION, COMMON DATA AREA FORMATS, AND FILE FORMATS. SECTION III PRESENTS THE PROGRAM DESCRIPTIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A004 425 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

METHOD OF POSITION INPUT INTO A COMPUTER OF INFORMATION ABOUT A MACHINE-BUILDING PART, (U)

DEC 74 24P PODYAKOV,B. A. ;
REPT. NO. FTD-HC-23-2885-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MONO. VYCHISLITELNAYA TEKHNIKA V MASHINOSTROENII, MINSK, DEC 70 P141-152.

DESCRIPTORS: *COMPUTER GRAPHICS, CODING, INFORMATION PROCESSING, MEMORY DEVICES, LOGIC DEVICES, TRANSLATIONS, USSR (U)
IDENTIFIERS: COMPUTER AIDED DESIGN (U)

METHOD OF POSITION INPUT INTO A COMPUTER OF INFORMATION ABOUT A MACHINE-BUILDING PART-- TRANSLATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A005 692 9/2
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER SCIENCE

THE OPTIMAL SELECTION OF SECONDARY INDICES FOR FILES. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
NOV 74 19P SCHKOLNICK,MARIO ;
CONTRACT: F44620-73-C-0074, ARPA ORDER-2466
MONITOR: AFOSR TR-75-0196

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA STORAGE SYSTEMS, DATA MANAGEMENT, INFORMATION RETRIEVAL, STATISTICAL ANALYSIS, MATHEMATICAL LOGIC, ALGORITHMS (U)
IDENTIFIERS: *COMPUTER STORAGE MANAGEMENT (U)

THE AUTHOR CONSIDERS THE PROBLEM OF FINDING AN OPTIMAL SET OF INDICES FOR A FILE. A GENERAL MODEL FOR A FILE IS ASSUMED TOGETHER WITH A PROBABILISTIC MODEL OF THE TRANSACTIONS CONDUCTED WITH IT: QUERIES, UPDATES, INSERTIONS AND DELETIONS. IT IS SHOWN THAT ALL THE INFORMATION ASSUMED FOR EACH ATTRIBUTE CAN BE CONDENSED INTO TWO PARAMETERS AND THAT PROPERTIES OF THE OPTIMAL SOLUTION CAN BE DERIVED FROM THIS CONDENSED INFORMATION. AN ALGORITHM TO FIND THE OPTIMAL SET OF INDICES BASED ON THESE PROPERTIES IS EXHIBITED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A006 119 9/2
JOHNS HOPKINS UNIV SILVER SPRING MD APPLIED PHYSICS LAB

USE OF A MICROPROCESSOR IN A SUPERVISORY CONTROL APPLICATION. (U)

DESCRIPTIVE NOTE: TECHNICAL MEMO.,
DEC 74 35P BINCK,H. J. ;ZOUCK,J. H.
;
REPT. NO. APL-TG-1269
CONTRACT: N00017-72-C-4401

UNCLASSIFIED REPORT

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *MICROCOMPUTERS, COMPUTER PROGRAMMING, INTEGRATED CIRCUITS, MEMORY DEVICES, LOGIC DEVICES, DEBUGGING(COMPUTERS), INTERFACES, CONTROL SYSTEMS, READ ONLY MEMORIES (U)
IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS (U)

THIS REPORT DESCRIBES THE SOLUTION OF A PROPULSION TEST CONTROL PROBLEM BY IMPLEMENTING SUPERVISORY CONTROL WITH AN LSI (LARGE-SCALE INTEGRATION) MICROPROCESSOR SYSTEM. A BRIEF DESCRIPTION OF THE CONTROL PROBLEM AND THE TEST IS PROVIDED. PRIMARY EMPHASIS IS ON THE SPECIFIC SOLUTION CHOSEN USING THE MICROPROCESSOR. THE PAPER DISCUSSES PROGRAMMING IN THE MICROPROCESSOR, THE TYPE OF MEMORY USED, AND HOW THE MEMORY WAS IMPLEMENTED. THE DESIGN GOALS THAT LED TO THE FINAL CONFIGURATION ARE ALSO DISCUSSED. THE REASONS FOR USING THE LSI MICROPROCESSOR ARE PRESENTED, TOGETHER WITH ITS LIMITATIONS AND ADVANTAGES. USE OF A MICROPROCESSOR IN THIS APPLICATION REDUCED HARDWARE COSTS SIGNIFICANTLY. PROGRAMS WERE WRITTEN IN THE MICRO PROCESSOR'S ASSEMBLY LANGUAGE, CROSS-ASSEMBLED ON ANOTHER COMPUTER, AND THEN BURNED INTO PROGRAMMABLE READ-ONLY MEMORIES. HARDWARE THAT AIDED IN THE PROGRAMMING AND DEBUGGING IS ALSO DESCRIBED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A006 649 9/2
NAVAL RESEARCH LAB WASHINGTON D C

MICROPROGRAMMED BENCHMARKS FOR THE MICROPROGRAMMED CONTROL UNIT OF THE AN/UYK-17(XB-1)(V) SIGNAL PROCESSING ELEMENT. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
JAN 75 154P ELOVITZ,HONEY SUE ;
REPT. NO. NRL-7832
PROJ: NRL-802-06, WF21-241
TASK: WF21-241-601

UNCLASSIFIED REPORT

DESCRIPTORS: *MICROPROGRAMMING, *SIGNAL PROCESSING, MEMORY DEVICES, ARITHMETIC UNITS, SHIFT REGISTERS, COMPUTATIONS, COMPUTER PROGRAMMING (U)
IDENTIFIERS: AN/UYK-17(XB-1)(V) (U)

THE AN/UYK-17(XB-1)(V) SIGNAL PROCESSING ELEMENT USES A MICROPROGRAMMED CONTROL UNIT (MCU) TO CONTROL THE OTHER COMPONENTS OF THE SIGNAL PROCESSING ELEMENT, TO FORMAT DATA FOR THESE OTHER COMPONENTS, AND TO PERFORM SIMPLE ARITHMETIC CALCULATIONS. FOURTEEN BENCHMARK PROGRAMS WERE WRITTEN FOR AN EARLY MODEL OF THE MCU AND RUN ON A SIMULATOR. AS A RESULT OF CODING AND EXECUTING THESE PROGRAMS, SEVERAL CHANGES WERE MADE IN THE MCU AND SELECTOR CHANNEL CONTROLLER (SCC) DESIGNS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A006 798 9/2
AIR FORCE FLIGHT TEST CENTER EDWARDS AFB CALIF

A TRANSPOSITION ALGORITHM FOR DIGITAL DATA COMPRESSION KEYS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 74 21P BERRA,FRED N. ;
REPT. NO. AFFTC-TD-74-2

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA STORAGE SYSTEMS, *DATA COMPRESSION, DATA PROCESSING, COMPUTATIONS, ALGORITHMS (U)
IDENTIFIERS: DATA KEY TRANSPOSITION (U)

A KEY TRANSPOSITION ALGORITHM, A PROCEDURE BY WHICH COMPUTER WORDS ARE TRANSFORMED INTO ENTITIES THAT ARE USED TO STORE AND RETRIEVE TABLE INFORMATION WITH GREAT EFFICIENCY, IS USEFUL IN MANY AREAS OF COMPUTER INFORMATION RETRIEVAL. A SPECIFIC KEY TRANSPOSITION ALGORITHM IS PRESENTED WHICH APPLIES TO A SET OF DIGITAL DATA COMPRESSION KEY INTEGERS OVER THE RANGE OF 1 < OR = K < OR = N. THIS SET IS NON-CONTINUOUS AND NON-UNIFORM, BUT HAS DEFINABLE SUBSETS (RANGING OVER K SUB I < OR = K < OR = K SUB J) WHICH ARE SEQUENTIALLY UNIFORM. THE ALGORITHM OPERATES FROM DENSELY STORED TABLES AND PERFORMS MOST ENTRIES TO OBTAIN TABLE INFORMATION WITH A DIVIDE AND ADD OPERATION. A MINIMUM CONTROLLED SCAN IS USED TO RETRIEVE THE INFORMATION ONLY WHEN A TRANSITION OCCURS BETWEEN ONE SUBRANGE AND ANOTHER. THE NUMBER OF SCANNED KEY INTEGERS IS USUALLY VERY SMALL. SOME TIMING COMPARISONS WITH A LOGARITHMIC SEARCH ARE PRESENTED SHOWING FROM 30 TO 40 PERCENT IMPROVEMENTS DEPENDING ON THE DIGITAL DATA COMPRESSION KEY STRUCTURE DEFINED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A006 932 8/11 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER SUPPORT OF SEISMIC DATA ACTIVITY. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 NOV 74-31 JAN 75,
MAR 75 41P
CONTRACT: MDA903-74-C-00227, DARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SEISMIC DATA, *DATA PROCESSING, *DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL, COMMUNICATIONS NETWORKS, INTERFACES (U)
IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER NETWORKS (U)

THE PURPOSE OF THE PROJECT IS TO SUPPORT THE ARPA-NMRO SEISMIC DATA ACTIVITY BY PROVIDING DATA STORAGE AND RETRIEVAL SERVICES. THE ARPANET WILL BE USED AS THE COMMUNICATION CHANNEL. AS PART OF THE SERVICE, SEISMIC DATA WILL BE (A) COLLECTED FROM THE ARPANET; (B) STORED; AND (C) MADE AVAILABLE TO COMPUTERS ON THE ARPANET IN A CONVENIENT AND TIMELY MANNER. THESE SERVICES REPRESENT A SPECIAL APPLICATION OF THE ARPANET DATACOMPUTER. THE ACTIVITY ON THE PROJECT TO DATE HAS BEEN PRIMARILY IN TWO AREAS: HARDWARE ACQUISITION AND COORDINATION WITH THE SEISMIC COMMUNITY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A007 480 9/2
NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER BETHESDA MD

PAKUNPK: A SET OF GENERAL PURPOSE COMPUTER ROUTINES TO ACCOMPLISH WORD PACKING AND UNPACKING. FOR USE WITH THE CDC FORTRAN FTN COMPILER. (U)

JAN 75 11P GOLDEN,MICHAEL E. ;
REPT. NO. NSRDC-4586

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPILERS, COMPUTER PROGRAMMING, FORTRAN, MEMORY DEVICES (U)
IDENTIFIERS: PAKUNPK COMPUTER CODE, CDC 6000 COMPUTERS (U)

THE PRECISION AVAILABLE ON A PARTICULAR COMPUTER SYSTEM FOR THE STORAGE OF VARIABLE VALUES IS OFTEN MORE THAN IS ACTUALLY NEEDED. A SET OF COMPUTER ROUTINES, PAKUNPK, HAS BEEN DEVELOPED TO ENABLE THE USER TO MAKE THE MOST EFFECTIVE USE OF CORE STORAGE BY PACKING MORE THAN ONE DATA VALUE WITHIN A COMPUTER WORD. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A007 739 9/2 8/6 8/2
ARMY ENGINEER TOPOGRAPHIC LABS FORT BELVOIR VA

A SYSTEM FOR TOPOGRAPHIC INQUIRY. NO. 3.
ALPHANUMERIC SUBSYSTEM DATA BASE
LISTING. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 70-30 JUN 74,
MAR 75 134P GUNTHER,ALDEN C. ;
REPT. NO. ETL-0004
PROJ: DMA-4304

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA STORAGE SYSTEMS, *TOPOGRAPHY,
DATA MANAGEMENT, INFORMATION RETRIEVAL, DATA BASES (U)
IDENTIFIERS: *STOPIN SYSTEM (U)

THE SYSTEM FOR TOPOGRAPHIC INQUIRY
(STOPIN)--ALPHANUMERIC SUBSYSTEM IS AN ONLINE,
TOPOGRAPHIC DATA SYSTEM DEVELOPED TO DEMONSTRATE THE
CAPABILITY TO STORE, RETRIEVE, AND DISSEMINATE LARGE
QUANTITIES OF NON-GRAPHIC TOPOGRAPHIC INFORMATION.
THIS REPORT PRESENTS A COMPLETE LIST OF THE DATA
ELEMENTS INCLUDED IN THE STOPIN DATA BASE
STRUCTURE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A007 759 20/12 9/1
SYSTEMS RESEARCH LABS INC DAYTON OHIO

SWITCHING AND MEMORY EFFECTS IN PHOSPHORUS-ION-IMPLANTED ZNSE DEVICES. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,
AUG 73 5P SHIN,B. K. ;PARK,Y. S. ;
CONTRACT: F33615-72-C-1099
PROJ: AF-7885
TASK: 788500
MONITOR: ARL 75-0031

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN PROCEEDINGS OF THE IEEE, V62 N4 P538-540 APR 74.

DESCRIPTORS: *SEMICONDUCTORS, *SEMICONDUCTOR DEVICES, SWITCHING, MEMORY DEVICES, ION IMPLANTATION, PHOSPHORUS, ZINC SELENIDES, REPRINTS (U)
IDENTIFIERS: P TYPE SEMICONDUCTORS (U)

SWITCHING AND MEMORY EFFECTS HAVE BEEN OBSERVED IN DIODES FABRICATED FROM PHOSPHORUS-IMPLANTED ZNSE. THE MATERIALS HAVING A CARRIER CONCENTRATION OF ABOUT 10 TO THE 18TH POWER/CU CM WERE IMPLANTED AT 90 KEV TO AN ION DOSE OF 10 TO THE 16TH POWER/SQ CM. THE SWITCHING AND MEMORY PHENOMENA ARE INTERPRETED IN TERMS OF FILLING AND EMPTYING OF THE TRAPPING CENTERS IN THE IMPLANTED P-TYPE LAYER. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A007 776 9/2 5/2
SYRACUSE UNIV N Y DEPT OF INDUSTRIAL ENGINEERING AND OPERATIONS RESEARCH

A DISCRETE SIMULATION MODEL OF THE REVISED AFMPC IOC MICROFORM SYSTEM. (U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT., FEB 75 88P TREHAN,VIJAY ;SARGENT,ROBERT G. ;
CONTRACT: F30602-74-C-0335
MONITOR: RADC TR-75-23

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA STORAGE SYSTEMS, *INFORMATION SYSTEMS, MILITARY PERSONNEL, MICROFICHE, INFORMATION RETRIEVAL, COMPUTER PROGRAMS, COMPUTERIZED SIMULATION (U)
IDENTIFIERS: SIMSCRIPT 2.5 PROGRAMMING LANGUAGE (U)

A SIMSCRIPT-II.5 SIMULATION MODEL OF THE REVISED AIR FORCE MILITARY PERSONNEL CENTER (AFMPC) INITIAL OPERATING CAPABILITY (IOC) MICROFORM SYSTEM BEING DEVELOPED BY ROME AIR DEVELOPMENT CENTER (RADC) IS DESCRIBED. THIS MODEL WILL ALLOW DIFFERENT WORKLOADS AND SYSTEM CONFIGURATIONS TO BE ANALYZED FOR SYSTEM DESIGN, FOR SCHEDULING OF DIFFERENT WORKLOADS, AND FOR AIDING IN THE EVALUATION AND TESTING OF THE ACTUAL SYSTEM ONCE IT IS IN OPERATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A007 783 9/2 8/2
HAMILTON STANDARD WINDSOR LOCKS CONN

COLOR DETECTION PROCESSING. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
FEB 75 61P HUBBARD,RICHARD G. ;
CONTRACT: F30602-73-C-0274
PROJ: AF-5569
TASK: 556903
MONITOR: RADC TR-75-28

UNCLASSIFIED REPORT

DESCRIPTORS: *IMAGE PROCESSING, COLORS, SIGNAL PROCESSING, MAPPING, MEMORY DEVICES, DATA PROCESSING (U)
IDENTIFIERS: *COLOR DISCRIMINATION (U)

IN THE COMPUTER OPERATION OF COVERTING RASTER-SCAN DATA TO A LINEAL FORMAT FOR THE PURPOSES OF CARTOGRAPHIC IMAGE PROCESSING, THE ACCURACY OF THE OUTPUT LINEAL DATA, COMPARED TO THE GRAPHIC SOURCE, IS INFLUENCED BY THE QUALITY OF THE INPUT RASTER DATA. RASTER-SCAN DATA QUALITY IS CHARACTERIZED BY THE EXTENT TO WHICH MICROSCALE IMAGE VARIATIONS ARE CONVERTED INTO A CONSISTENT, MACROSCALE IMAGE REPRESENTATION. THE OBJECTIVE OF THE WORK DESCRIBED HEREIN WAS TO DETERMINE THAT THE FLEXIBLE CAPABILITY AND FUNCTIONAL CAPACITY OF A COMPUTER-CENTERED RASTER SCAN PROCESS WAS A PRACTICAL APPROACH WHICH COULD ENHANCE THE RASTER DATA PRODUCT AS AN INPUT TO THE LINEAL CONVERSION. THE EFFORT INCLUDED THE STUDY AND ANALYSIS OF COLOR DISCRIMINATION TECHNIQUES, AND DATA EDITING PROCEDURES, APPLICABLE TO COMPUTER USAGE, AS WELL AS THE IMPLEMENTATION OF THESE FUNCTIONS IN AN EXPERIMENTAL TEST SYSTEM INCLUDING THE AUTOMATIC COLOR SEPARATION DEVICE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A008 012 9/2 8/6 8/2
ARMY ENGINEER TOPOGRAPHIC LABS FORT BELVOIR VA

A SYSTEM FOR TOPOGRAPHIC INQUIRY NO. 2
ALPHANUMERIC SUBSYSTEM. (U)

DESCRIPTIVE NOTE: FINAL REPT. JUL 70-JUL 74,
MAR 75 103P GUNTHER,ALDEN CORELL ;
REPT. NO. ETL-0003
PROJ: DNA-4304

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT No. 3, AD-A007 739.

DESCRIPTORS: *DATA STORAGE SYSTEMS, *TOPOGRAPHY, INFORMATION SYSTEMS, COMPUTER PROGRAMMING, DATA BASES, DATA MANAGEMENT (U)
IDENTIFIERS: *STOPIN SYSTEM (U)

THE SYSTEM FOR TOPOGRAPHIC INQUIRY (STOPIN)--ALPHANUMERIC SUBSYSTEM IS AN ON-LINE, TOPOGRAPHIC DATA SYSTEM DEVELOPED TO DEMONSTRATE THE CAPABILITY TO STORE, RETRIEVE, AND DISSEMINATE LARGE QUANTITIES OF NON-GRAPHIC TOPOGRAPHIC INFORMATION. THIS REPORT DESCRIBES THE ASSUMPTIONS AND DESIGN CRITERIA EMPLOYED DURING THE DEVELOPMENT, OUTLINES THE SOFTWARE PACKAGE DEVELOPED TO IMPLEMENT THE DATA BASE, AND PROVIDES A DESCRIPTION OF EACH DATA FIELD INCLUDING THE ALLOWABLE REQUESTS FOR INFORMATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A008 631 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

MAGNETIC DISC UNIT. (U)

MAR 75 6P
REPT. NO. FTD-HC-23-0981-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MECHANIZACE, AUTOMATIZACE ADMINISTRATIVY (USSR) N8 P324 1973.

DESCRIPTORS: *MAGNETIC DISKS, *MEMORY DEVICES, TRANSLATIONS, USSR (U)
IDENTIFIERS: *MAGNETIC STORAGE (U)

MAGNETIC DISC UNIT--TRANSLATION.

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A008 842 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

INTERFACE MESSAGE PROCESSORS FOR THE ARPA COMPUTER NETWORK. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. NO. 8, 1 OCT-31 DEC 74.
JAN 75 38P HEART,FRANK E. ;
REPT. NO. BBN-2988
CONTRACT: F08606-73-C-0027, ARPA ORDER-2351
PROJ: AF-2351

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED OCT 74, AD/A-000 556.

DESCRIPTORS: *COMMUNICATIONS NETWORKS, *DATA PROCESSING TERMINALS, RELIABILITY, MESSAGE PROCESSING, COMPUTER PROGRAMMING, REDUNDANCY, MULTIPROCESSORS, MEMORY DEVICES (U)
IDENTIFIERS: *ARPA COMPUTER NETWORK, IMP(INTERFACE MESSAGE PROCESSORS), *INTERFACE MESSAGE PROCESSORS, COMPUTER NETWORKS (U)

THE ARPA COMPUTER NETWORK IS A PACKET SWITCHING STORE-AND-FORWARD COMMUNICATIONS SYSTEM DESIGNED FOR USE BY COMPUTERS AND COMPUTER TERMINALS. THIS REPORT CONCENTRATES ON THE NEW PLURIBUS IMP DESIGN; IN PARTICULAR ON THOSE ASPECTS OF THE DESIGN WHICH MAKE A HIGHLY RELIABLE SYSTEM. BOTH THE MULTIPROCESSOR HARDWARE AND THE SOFTWARE WHICH OPERATES ON IT INCLUDE A LARGE NUMBER OF FEATURES DESIGNED TO INSURE RELIABLE OPERATION; THE DESIGN IS APPLICABLE TO A MUCH BROADER SET OF USES THAN THE IMP ALGORITHM. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A008 877 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER PROJECT. (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. 1 JUL 74-31 DEC 74.
DEC 74 110P
CONTRACT: MDA903-74-C-0225, ARPA ORDER-2687

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED JUN 74, AD-787 677.

DESCRIPTORS: *DATA STORAGE SYSTEMS, *COMMUNICATIONS NETWORKS, TIME SHARING, DATA PROCESSING, COMPUTER PROGRAMMING, PROGRAMMING LANGUAGES, INSTRUCTION MANUALS, ON LINE SYSTEMS (U)
IDENTIFIERS: *DATACOMPUTER PROJECT, *COMPUTER NETWORKS, ARPA COMPUTER NETWORK (U)

THE DATACOMPUTER SYSTEM IS BEING DESIGNED AS A LARGE-SCALE DATA STORAGE UTILITY TO BE ACCESSED FROM REMOTE COMPUTERS ON THE ARPANET AND, POTENTIALLY, ON OTHER NETWORKS. THE DEVELOPMENT IS PHASED, WITH EACH SUCCESSIVE RELEASE OF THE SYSTEM OFFERING INCREASED CAPABILITIES TO USERS. DURING THE PRESENT REPORTING PERIOD, THE THIRD MAJOR RELEASE OF THE SYSTEM BECAME OPERATIONAL. THIS RELEASE, WHILE STILL PRIMITIVE IN MANY RESPECTS, IS PROVIDING SERVICE FOR A WIDE RANGE OF APPLICATIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A009 218 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE PROJECT MAC

PROGRAM RESTRUCTURING FOR VIRTUAL MEMORY SYSTEMS. (U)

DESCRIPTIVE NOTE: INTERIM SCIENTIFIC REPT.,
MAR 75 224P JOHNSON,JERRY W. ;
REPT. NO. MAC-TR-148
CONTRACT: N00014-70-A-0362-0006

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMMING, *MEMORY DEVICES, MATHEMATICAL LOGIC, CLUSTERING, COMPUTATIONS, ALGORITHMS, THEOREMS (U)
IDENTIFIERS: *VIRTUAL MEMORY, *PAGING, MAC PROJECT, MULTIPROGRAMMING, IBM 360 COMPUTERS (U)

THE PROBLEM AREA ADDRESSED IN THIS REPORT IS PROGRAM RESTRUCTURING, A METHOD OF REORDERING THE RELOCATABLE SECTORS (SUBROUTINE AND DATA MODULES) OF A PROGRAM IN ITS ADDRESS SPACE TO INCREASE THE LOCALITY OF THE PROGRAM'S REFERENCE BEHAVIOR, THEREBY REDUCING THE NUMBER OF PAGE FETCHES REQUIRED FOR ITS EXECUTION IN A VIRTUAL MEMORY SYSTEM. THEORETICAL UPPER AND LOWER (OPTIMUM) BOUNDS ARE DERIVED FOR THE PAGING PERFORMANCE OF PROGRAMS OVER ALL PARTITIONS OF RELOCATABLE SECTORS INTO PAGES. PROGRAM RESTRUCTURING TECHNIQUES ARE DEVELOPED WHICH USE INTERSECTOR REFERENCE MODELS BASED ON SECTOR WORKING SETS AND SECTOR STACK DISTANCES. THESE INTERSECTOR REFERENCE MODELS IDENTIFY THE LOCAL REFERENCE BEHAVIOR, AND CLUSTERING PROCEDURES ARE DEVELOPED THAT USE THIS LOCAL REFERENCE BEHAVIOR TO REARRANGE SECTORS INTO PAGES SUCH THAT SIGNIFICANT IMPROVEMENT IN PAGING PERFORMANCE IS OBTAINED. RESULTS OF MEASUREMENTS OF PAGING PERFORMANCE OBTAINED IN THE COMPUTER LABORATORY ARE DISCUSSED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A009 430 9/2
COLLEGE OF WILLIAM AND MARY WILLIAMSBURG VA DEPT OF MATHEMATICS

SYSTEM BALANCE ANALYSIS FOR VECTOR COMPUTERS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 75 29P KNIGHT,JOHN C. ;POOLE,
WILLIAM G. , JR.;VOIGHT,ROBERT G. ;
REPT. NO. TR-7
CONTRACT: N00014-73-A-0374-0001, NGR-47-102-001
PROJ: NR-044-459

UNCLASSIFIED REPORT

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *INPUT OUTPUT PROCESSING, ARITHMETIC UNITS, MEMORY DEVICES, COMPUTATIONS, ALGORITHMS (U)
IDENTIFIERS: *VECTOR COMPUTERS (U)

THE AVAILABILITY OF VECTOR PROCESSORS CAPABLE OF SUSTAINING COMPUTING RATES OF (10 TO THE 8TH POWER) ARITHMETIC RESULTS PER SECOND HAS RAISED THE QUESTION OF WHETHER PERIPHERAL STORAGE DEVICES REPRESENTING CURRENT TECHNOLOGY CAN KEEP SUCH PROCESSORS SUPPLIED WITH DATA. BY CAREFULLY EXAMINING THE SOLUTION OF A LARGE BANDED LINEAR SYSTEM ON THESE COMPUTERS IT IS FOUND THAT EVEN UNDER IDEAL CONDITIONS THE PROCESSORS WILL FREQUENTLY BE WAITING FOR PROBLEM DATA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A009 833 8/3 9/2
RHODE ISLAND UNIV KINGSTON GRADUATE SCHOOL OF OCEANOGRAPHY

A STORAGE FORMAT FOR CURRENT METER DATA. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 75 21P KRAMER,WILLIAM P. ;
REPT. NO. REF-75-2
CONTRACT: N00014-68-A-0215-0003
PROJ: NR-083-165

UNCLASSIFIED REPORT

DESCRIPTORS: *OCEAN CURRENTS, *DATA STORAGE SYSTEMS, MAGNETIC TAPE, DATA PROCESSING, FLOWMETERS (U)

A RECENTLY ESTABLISHED DATA ARCHIVING GROUP AT URI HAS ADOPTED A FORMAT FOR THE STORAGE OF CURRENT METER DATA. THE STORAGE FORMAT CHOSEN SERVES TWO PURPOSES. IT IS USED FOR IN-HOUSE DATA STORAGE AND PROCESSING AND COPIES ARE SENT TO EXTERNAL DATA AGENCIES. EIGHTY CHARACTER CARD IMAGES ARE BLOCKED ONTO A NINE TRACK TAPE IN EBCDIC CHARACTER CODE AT A PACKING DENSITY OF 800 BITS PER INCH. THE FIRST TEN TAPE RECORDS OF EACH FILE CONTAIN HEADER INFORMATION (LABEL RECORDS) REVEALING THE STATION INFORMATION. WITHIN THESE FIRST TEN TAPE RECORDS THE USER IS TOLD THE VARIABLES STORED AND THE FORMAT OF THE DATA RECORDS WHICH FOLLOW. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A009 887 9/2
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB

HIGH DENSITY OPTICAL MEMORY. (U)

DESCRIPTIVE NOTE: QUARTERLY PROGRESS REPT. OCT-DEC 74.
APR 75 4P
CONTRACT: N00014-67-A-0305-0015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MEMORY DEVICES, CRYSTALS, ELECTRON BEAMS, THIN FILMS, ALUMINUM, POTASSIUM CHLORIDE, COLORING, INTERFACES (U)
IDENTIFIERS: *OPTICAL CRYSTAL MEMORIES (U)

DURING THIS PERIOD, THE PROBLEM OF PRODUCING UNIFORMLY COLORED CRYSTALS USING ELECTRON BOMBARDMENT HAS BEEN INVESTIGATED. COMPUTER INTERFACE HARDWARE HAS BEEN COMPLETED AND PRELIMINARY PROGRAMS HAVE BEEN WRITTEN FOR COMPUTER TESTING OF THE MEMORY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A010 002 9/1 20/12 9/2
CLARKSON COLL OF TECHNOLOGY POTSDAM N Y

CTRUMP: ITS DEVELOPMENT AND USE IN SOLUTION OF PROBLEMS OF CONDUCTION HEAT FLOW IN SOLID STATE DEVICES. (U)

DESCRIPTIVE NOTE: PHASE REPT.,
MAR 75 154P BASILE,ROBERT L. ;DOMINGOS, HENRY ;
CONTRACT: F30602-72-C-0463
MONITOR: RADC TR-75-74

UNCLASSIFIED REPORT

DESCRIPTORS: *SEMICONDUCTOR DEVICES, *CONDUCTION(HEAT TRANSFER), *COMPUTER PROGRAMMING, SOLID STATE PHYSICS, THIN FILMS, GALLIUM ARSENIDES, CARBON RESISTORS, COMPUTATIONS, FORTRAN, GUNN DIODES (U)
IDENTIFIERS: IBM 360/44 COMPUTERS, CTRUMP COMPUTER PROGRAM (U)

THE TRUMP PROGRAM, DEVELOPED BY ARTHUR EDWARDS OF THE LAWRENCE RADIATION LABORATORY, HAS BEEN ADAPTED FOR USE ON THE IBM 360/44, UNDER THE NAME CTRUMP. MODIFICATIONS WERE MADE TO ENABLE CALCULATIONS OF THREE-DIMENSIONAL HEAT FLOW IN SOLID STATE DEVICES, AS A RESULT OF INTERNAL CONDUCTION AND INTERNAL HEAT GENERATION WITH CONSTANT BOUNDARY CONDITIONS. CTRUMP WAS THEN USED TO CALCULATE TEMPERATURE RISE IN THIN FILM AND CARBON RESISTOR MODELS, AS WELL AS IN A MODEL OF A GALLIUM ARSENIDE GUNN EFFECT DIODE. AN OPERATING MANUAL FOR CTRUMP IS INCLUDED AS AN APPENDIX. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A010 235 8/11 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER SUPPORT OF SEISMIC DATA ACTIVITY. (U)

DESCRIPTIVE NOTE: ANNUAL TECHNICAL REPT. 22 APR-31 DEC 74.
MAY 75 12P
CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 21 MAR 75, AD/A006 932.

DESCRIPTORS: *SEISMIC DATA, *DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL, COMMUNICATIONS NETWORKS, INTERFACES, ON LINE SYSTEMS (U)
IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER NETWORKS (U)

THE PURPOSE OF THE PROJECT IS TO SUPPORT THE ARPA-NMRO SEISMIC DATA ACTIVITY BY PROVIDING DATA STORAGE AND RETRIEVAL SERVICES. THE ARPANET WILL BE USED AS THE COMMUNICATION CHANNEL. AS PART OF THE SERVICE, SEISMIC DATA WILL BE (A) COLLECTED FROM THE ARPANET; (B) STORED; AND (C) MADE AVAILABLE TO COMPUTERS ON THE ARPANET IN A CONVENIENT AND TIMELY MANNER. THE ACTIVITY ON THE PROJECT TO DATE HAS BEEN PRIMARILY IN TWO AREAS: HARDWARE ACQUISITION AND COORDINATION WITH THE SEISMIC COMMUNITY. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A010 556 8/11 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER SUPPORT OF SEISMIC DATA ACTIVITY. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 FEB-30 APR 75.
MAY 75 15P
CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 21 MAR 75, AD-A006 932.

DESCRIPTORS: *SEISMIC DATA, *DATA PROCESSING, *DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL, COMMUNICATIONS NETWORKS, INTERFACES (U)
IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER NETWORKS (U)

THE PURPOSE OF THE PROJECT IS TO SUPPORT THE ARPA-NMRO SEISMIC DATA ACTIVITY BY PROVIDING DATA STORAGE AND RETRIEVAL SERVICES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A010 590 9/2
MITRE CORP MCLEAN VA

DESIGN OF A SECURE FILE MANAGEMENT SYSTEM, (U)

APR 75 31P WHITE,J. C. C. ;
REPT. NO. MTR-2931
CONTRACT: F19628-73-C-0001
PROJ: AF-7070
MONITOR: ESD TR-75-57

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA PROCESSING SECURITY, *DATA STORAGE SYSTEMS, MEMORY DEVICES, PROTECTION (U)
IDENTIFIERS: PDP-11/45 COMPUTERS, *COMPUTER PRIVACY, *COMPUTER INFORMATION SECURITY, *FILE MANAGEMENT SYSTEMS (U)

A FILE MANAGEMENT/OPERATING SYSTEM BASED ON THE PDP-11/45 SECURITY KERNEL IS DESCRIBED. THE SYSTEM WILL ALLOW COMPLETE SHARING OF FILES, SUBJECT TO THE CONTROL OF THE SECURITY KERNEL, SO THAT PROBLEMS BROUGHT ABOUT BY THE CONFLICTING REQUIREMENTS FOR SECURITY AND SHARING CAN BE IDENTIFIED AND EXPLORED. IT WILL PROVIDE A VEHICLE FOR EXPERIMENTATION WITH THE EXTENSIONS OF THE KERNEL REQUIRED FOR MULTISOURCE INFORMATION CORRELATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A010 719 9/5 9/2
ILLINOIS UNIV URBANA COORDINATED SCIENCE LAB

DESIGN OF TOTALLY SELF-CHECKING ASYNCHRONOUS SEQUENTIAL MACHINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 75 121P OZGUNER,FUSUN ;
REPT. NO. R-679, UILU-ENG-75-2214
CONTRACT: DAAB07-72-C-0259

UNCLASSIFIED REPORT

DESCRIPTORS: *SWITCHING CIRCUITS, LOGIC CIRCUITS, FLIP FLOP CIRCUITS, GATES(CIRCUITS), ASYNCHRONOUS SYSTEMS, REDUNDANT COMPONENTS, CODING, THEOREMS, THESES (U)
IDENTIFIERS: *SEQUENTIAL MACHINES, *ASYNCHRONOUS SEQUENTIAL CIRCUITS, FAULT DETECTION, MEALEY MODEL (U)

PROPERTIES OF STATE ASSIGNMENTS AND CIRCUIT REALIZATIONS THAT LEAD TO TOTALLY SELF-CHECKING ASYNCHRONOUS MACHINE DESIGNS ARE STUDIED. THE STATE VARIABLES AND THE OUTPUTS ARE ENCODED SO THAT ALL SINGLE AND UNIDIRECTIONAL FAULTS CAUSE THE MACHINE TO ASSUME A NONCODE STATE OR OUTPUT. SEVERAL STATE ASSIGNMENT METHODS ARE PRESENTED. ONE IS THE TWO-RAIL ASSIGNMENT WHERE THE FEEDBACK LINES ARE CHECKED WITH A TWO-RAIL CHECKER TREE. IT IS SHOWN THAT ANY TWO-RAIL CHECKER CANNOT BE USED BECAUSE THE STATE ASSIGNMENT DOES NOT IN GENERAL HAVE ALL THE TWO-RAIL CODEWORDS. THEREFORE A CHECKER TREE THAT CAN BE CHECKED BY THE STATE ASSIGNMENT CODE MUST BE SELECTED. AN ALGORITHM FOR FINDING SUCH A TREE IS PRESENTED. THE EFFECT OF A FAULT ON THE ENCODED OUTPUTS IS STUDIED. A SELF-CHECKING CIRCUIT PRODUCES A NONCODE OUTPUT FOR AT LEAST ONE CODE SPACE INPUT. IT IS SHOWN THAT A SELF-CHECKING ASYNCHRONOUS MACHINE WILL PRODUCE A NONCODE OUTPUT FOR AT LEAST ONE INPUT SEQUENCE WHICH OCCURS UNDER NORMAL OPERATION. FOR THIS DESIGN, THE DESTINATION SETS OF EACH INPUT COLUMN OF THE FLOW TABLE ARE ENCODED WITH A CONSTANT WEIGHT OR ANOTHER UNORDERED CODE. REDUNDANCIES IN THE CODE AND IN THE REALIZATION ARE DISCUSSED. IT IS SHOWN THAT EXTRA OUTPUTS CAN BE USED FOR THE DETECTION OF PRIMARY INPUT FAULTS AND FOR A CLASS OF FLOW TABLES FOR FASTER FAULT DETECTION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A010 848 9/4 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE RESEARCH LAB OF ELECTRONICS

COMPUTER ARCHITECTURE FOR SIGNAL PROCESSING. (U)

OCT 74 10P ALLEN,JONATHAN ;
CONTRACT: DAAB07-74-C-0630, N00014-67-A-0204-0064

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN PROCEEDINGS OF THE IEEE, V63 N4 P624-633 APR 75.

DESCRIPTORS: *SIGNAL PROCESSING, *COMPUTER ARCHITECTURE, DIGITAL SYSTEMS, ALGORITHMS, PROGRAMMING LANGUAGES, REAL TIME, DIGITAL COMPUTERS, COSTS, HIGH RATE, LOGIC CIRCUITS, INTEGRATED CIRCUITS, REPRINTS, MEMORY DEVICES (U)

THERE IS AN INCREASING TREND TO USE DIGITAL SIGNAL-PROCESSING TECHNIQUES TO SOLVE REAL-TIME PROBLEMS. THIS LEADS TO A NEED FOR PROCESSORS WHICH CAN PERFORM COMPLICATED SIGNAL-PROCESSING ALGORITHMS ON LARGE AMOUNTS OF DATA AT HIGH SPEEDS. COMPUTER ARCHITECTURES FOR THIS PURPOSE ARE SHOWN TO ARISE FROM A CONSIDERATION OF SEVERAL STRUCTURAL FACTORS, INCLUDING TECHNOLOGY, THE ALGORITHMS TO BE PERFORMED, DATA STRUCTURES, AND THE PROGRAMMING LANGUAGE. WHEN THESE FACTORS ARE COMPLEMENTARY, EFFICIENT YET ECONOMICAL DESIGNS RESULT. THE STRUCTURAL FACTORS ARE DESCRIBED, AND THEN SEVERAL COMPUTER DESIGNS ARE DISCUSSED IN LIGHT OF THIS CONCEPTUAL FRAMEWORK. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 325 20/1 9/2 9/5
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

SURFACE ACOUSTOELECTRIC CORRELATOR WITH SURFACE STATE MEMORY. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,
74 4P CAFARELLA,JOHN H. ;BERS, ABRAHAM ;STERN,ERNEST ;
REPT. NO. MS-3822
CONTRACT: F19628-73-C-0002
PROJ: DA-7-X-263304-D-215
MONITOR: ESD TR-75-152

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN IEEE ULTRASONIC SYMPOSIUM PROCEEDINGS, P216-219 1974.

DESCRIPTORS: *SURFACE WAVES, *MEMORY DEVICES, *CORRELATORS, ACOUSTIC WAVES, SILICON, ACOUSTIC SIGNALS, DATA STORAGE SYSTEMS, LITHIUM COMPOUNDS, NIOBATES, REPRINTS (U)
IDENTIFIERS: MEMORY CORRELATORS, *SURFACE STATE MEMORIES, *SURFACE ACOUSTOELECTRIC CORRELATORS, TIME CONSTANT, TIME BANDWIDTH PRODUCT (U)

THE RESULTS ARE PRESENTED FROM AN EXPERIMENTAL MEMORY-CORRELATOR. SURFACE STATE CHARGE STORAGE IS INCORPORATED IN A COUPLED LINBO3-SI SYSTEM TO YIELD A DEVICE WHICH STORES A SPATIAL REPLICA OF A REFERENCE ACOUSTIC SIGNAL AND GIVES THE CORRELATION FUNCTION OF OTHER ACOUSTIC SIGNALS WITH THE REFERENCE. THE TIME CONSTANT FOR STORING A PATTERN IN CHARGED SURFACE STATES IS MADE MUCH SMALLER THAN THE THERMAL DECAY TIME CONSTANT ASSOCIATED WITH THE TRAPS. THIS EFFECT ALLOWS WIDE BANDWIDTH SIGNALS TO BE STORED FOR LONG TIMES. THE PRESENT DEVICE USES SI ON Y-Z LINBO3 AT 166 MHZ. A SHORT R.F. STROBE IS APPLIED TO THE SILICON PLATE TO EFFECT THE STORAGE OF THE ACOUSTIC WAVE PATTERN IN SURFACE STATES. THE CORRELATION LOSS IS 47 DB FOR A 4.4 MICROSEC CW SIGNAL. THE STROBE DURATION OF 0.4 MICROSEC CORRESPONDS TO A 2.5 MHZ BANDWIDTH CAPACITY, AND A TIME-BANDWIDTH PRODUCT GREATER THAN 10 HAS BEEN DEMONSTRATED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 326 20/1 9/2 9/5
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

SURFACE WAVE CORRELATOR - CONVOLVER WITH MEMORY. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,
74 10P BERS,ABRAHAM ;CAFARELLA,JOHN H. ;
REPT. NO. MS-3890
CONTRACT: F19628-73-C-0002
PROJ: DA-7-X-263304-D-215
MONITOR: ESD TR-75-154

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN IEEE ULTRASONIC SYMPOSIUM PROCEEDINGS, P778-787 1974.

DESCRIPTORS: *SURFACE WAVES, *ACOUSTIC WAVES, *MEMORY DEVICES, CORRELATORS, SEMICONDUCTORS, DYNAMICS, REPRINTS (U)
IDENTIFIERS: *MEMORY CONVOLVERS, *MEMORY CORRELATORS, SURFACE ACOUSTIC WAVES (U)

THE PRINCIPLES OF OPERATION AND APPLICATION OF SURFACE ACOUSTIC WAVE (SAW) CORRELATORS AND CONVOLVERS WHICH CONTAIN A MEMORY FOR SIGNALS ARE DESCRIBED. A DETAILED ANALYSIS IS PRESENTED FOR THE DYNAMICS OF SURFACE STATES ON A SEMI-CONDUCTOR AS A MEMORY IN A SAW CORRELATOR-CONVOLVER. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 390 9/5 9/2
WESTINGHOUSE RESEARCH LABS PITTSBURGH PA

THIN FILM DISPLAY SWITCHES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 APR-12 DEC 74,
MAY 75 43P BRODY,THOMAS P. ;YU,KARL
K. ;
REPT. NO. 75-9G9-PRNTM-R1
CONTRACT: N00014-71-C-0269
PROJ: NR-215-169

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MATRIX DISPLAYS, *THIN FILM STORAGE DEVICES, TRANSISTORS, PANELS, ELECTROLUMINESCENCE, DISPLAY SYSTEMS (U)
IDENTIFIERS: ELECTROLUMINESCENT PANELS (U)

A THIN FILM TRANSISTOR WITH A FLOATING SECOND GATE, CAPABLE OF NONVOLATILE STORAGE OF ANALOG DATA, WAS THE SUBJECT OF THE INVESTIGATION. FURTHER DEVELOPMENT RESULTED IN A CLOSELY CONTROLLED, REPRODUCIBLE FABRIACATION PROCESS AND A HIGHER VOLTAGE CAPABILITY. A 40X40 ELEMENT, 1 INCH SQUARE MATRIX, CONSISTING OF X-Y ADDRESSIBLE MEMORY TRANSISTORS AT EACH POINT WAS DESIGNED, LAID OUT USING CAD TECHNIQUES AND FABRICATED IN A SINGLE VACUUM DEPOSITION CYCLE. MASK AND SUBSTRATE REGISTRATION TECHNIQUES WERE ALSO IMPROVED, RESULTING AN EXCELLENT RUN-TO-RUN REPRODUCIBILITY OF THE DEPOSITION PATTERNS. BY COATING THE FINISHED MEMORY MATRICES WITH AN ELECTROLUMINESCENT PHOSPHOR (WESTINGHOUSE 'HYPERMAINTENANCE' PHOSPHOR), PROVIDING A COMMON TRANSPARENT FRONT ELECTRODE AND SEALING WITH A COVER-GLASS, COMPLETE 40 X 40 ELEMENT STORAGE DISPLAYS WERE MADE. THE DISPLAYS WERE OPERABLE UP TO 140V PEAK-TO-PEAK. THE EL DRIVING FREQUENCIES RANGED FROM 3 TO 20 KHZ. WRITING OF INFORMATION INTO INDIVIDUAL ELEMENTS WAS DEMONSTRATED BY (MANUAL) PULSING OF ROWS AND COLUMNS. LETTERS WERE WRITTEN INTO THE PANEL IN THIS MANNER, AND THE NON-VOLATILE STORAGE OF SUCH PATTERNS OVER PERIODS OF EXCESS OF 90 MINUTES WAS DEMONSTRATED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 535 9/5 9/2 17/9
STANFORD RESEARCH INST MENLO PARK CALIF

CELLULAR LOGIC-IN-MEMORY ARRAYS. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
SEP 74 42P PEASE,MARSHALL C. ;
CONTRACT: N00014-72-C-0431
PROJ: SRI-1982

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *SIGNAL PROCESSING, *DIGITAL FILTERS, FOURIER TRANSFORMATION, LOGIC CIRCUITS, SHIFT REGISTERS, RADAR SIGNALS, INTEGRATED CIRCUITS (U)
IDENTIFIERS: CELLULAR LOGIC IN MEMORY ARRAYS, FAST FOURIER TRANSFORM, DISCRETE FOURIER TRANSFORMATION, LARGE SCALE INTEGRATED CIRCUITS (U)

THE OBJECTIVE OF THIS EFFORT WAS TO DETERMINE THE ENGINEERING FEASIBILITY OF AN ALL-DIGITAL TRANSVERSE FILTER FOR SIGNAL PROCESSING REQUIREMENTS. THIS ASSESSMENT IS MADE BY ANALYZING ALTERNATIVE CIRCUIT CONFIGURATIONS TO ENOUGH ACCURACY AND DEPTH TO DETERMINE IF RRESCRIBED FUNCTIONAL AND SPEED SPECIFICATIONS CAN BE MET, AND IF SO, TO CALCULATE THE APPROXIMATE HARDWARE COST. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A011 702 9/2 20/3 18/8
ROCKWELL INTERNATIONAL CORP ANAHEIM CALIF ELECTRONICS RESEARCH DIV

EFFECTS OF NUCLEAR RADIATION ON MAGNETIC BUBBLE DOMAIN MATERIALS AND DEVICES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 MAY 73-31 DEC 74,
JAN 75 91P WILLIAMS,ROSS A. ;
REPT. NO. C73-954/501
CONTRACT: F19628-73-C-0250
PROJ: AF-6096
TASK: 609604
MONITOR: AFCRL TR-75-0037

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *THIN FILM STORAGE DEVICES, *MEMORY DEVICES, *TRANSIENT RADIATION EFFECTS, *MAGNETIC DOMAINS, SHIFT REGISTERS, THICK FILMS, GARNET, RADIATION EFFECTS, X RAYS, MAGNETIC DETECTORS, MAGNETIC ALLOYS, GAMMA RAYS (U)
IDENTIFIERS: *MAGNETIC BUBBLE DOMAINS, PERMALLOYS (U)

THE EFFORT CONCENTRATES ON RADIATION-INDUCED FAILURE THRESHOLDS AND ASSOCIATED MECHANISMS FOR MAGNETIC BUBBLE DOMAIN DEVICES. HOWEVER, EXPERIMENTS TO INVESTIGATE THE EFFECTS OF LOW-ENERGY X RAYS ON BUBBLE DOMAIN MATERIALS ARE ALSO DESCRIBED. IN THE LOW-ENERGY X-RAY STUDIES, CHANGES IN HARD BUBBLE SUPPRESSION PROPERTIES, OR FERROMAGNETIC-RESONANCE SPECTRA, WERE LOOKED FOR IN EITHER OF TWO TYPES OF IRON GARNETS EXPOSED TO MORE THAN 6,000,000 R. THE PRIMARY EFFORT CONCERNED TRANSIENT RADIATION-INDUCED MEMORY LOSS. A 30 NS PULSE OF APPROXIMATELY 1.5 MEV ELECTRONS WAS USED. FAILURE PROBABILITIES AS A FUNCTION OF DOSE PER PULSE WERE OBTAINED FOR SEVERAL DEVICES. TRANSIENT RADIATION-INDUCED BURNOUT OF DOMAIN SENSORS WAS ALSO STUDIED FOR BOTH THIN (300 A) AND THICK (4000 A) PERMALLOY DETECTORS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A011 800 9/2
HAWAII UNIV HONOLULU DEPT OF INFORMATION AND COMPUTER SCIENCE

OPTIMAL CONTROL OF DEMAND-PAGING SYSTEMS, (U)

75 8P LET,ART ;
CONTRACT: DA-ARO-D-31-124-71-G43
MONITOR: ARO 8803.15-EL

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, *CONTROL THEORY, DYNAMIC PROGRAMMING, MATHEMATICAL MODELS, ALGORITHMS, THEOREMS (U)
IDENTIFIERS: *PAGING, VIRTUAL MEMORY, COMPUTER STORAGE MANAGEMENT, STOCHASTIC CONTROL (U)

DEMAND-PAGING SYSTEMS ARE CHARACTERIZED AS STOCHASTIC CONTROL PROCESSES, AND OPTIMAL PAGE REPLACEMENT DECISIONS ARE DETERMINED BY MEANS OF DYNAMIC PROGRAMMING. THIS APPROACH IS DISTINGUISHED FROM OTHERS BY ITS USE OF PAGE STRUCTURE INFORMATION, WHICH MAY BE FITHER SUPPLIED A PRIORI OR ELSE DYNAMICALLY LEARNED. THE MAIN RESULT IS AN OPTIMAL REALIZABLE SOLUTION FOR A GENERAL CLASS OF REPLACEMENT PROBLEMS. THE RESULTING ALGORITHM SUBSUMES OTHERS (INCLUDING (A SUB 0)) AS SPECIAL CASES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A013 005 9/5 9/1
RCA ELECTRONIC COMPONENTS PRINCETON N J MICROWAVE TECHNOLOGY CENTER

MICROWAVE FREQUENCY MEMORY USING GAAS TRANSFERRED-ELECTRON DEVICES. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 15 MAY 74-14 MAY 75,
JUN 75 35P CURTICE,WALTER R. ;
REPT. NO. PRRL-75-CR-34
CONTRACT: N00014-74-C-0371
PROJ: NR-251-015, RF54-545
TASK: RF54-545-001

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *REGISTERS(CIRCUITS), FREQUENCY, MICROWAVE EQUIPMENT, GALLIUM ARSENIDES, STRIP TRANSMISSION LINES, ELECTRON TRANSFER, SEMICONDUCTOR DEVICES, MEMORY DEVICES, VARACTOR DIODES, TUNING DEVICES, GUNN DIODES (U)
IDENTIFIERS: *TRANSFERRED ELECTRON DEVICES, FREQUENCY MEMORIZERS (U)

TRANSFERRED-ELECTRON DEVICES (TEDS) IN MICROSTRIP RF CIRCUITS HAVE BEEN STUDIED FOR USE IN FREQUENCY MEMORY APPLICATIONS. THE CLOSEST FREQUENCY SPACING OBTAINED FOR MEMORY STATES IN AN EXPERIMENTAL SYSTEM IS 22.4 MHZ. TWENTY STATES ARE AVAILABLE BETWEEN 11.33 GHZ AND 10.755 GHZ. IT WAS SHOWN POSSIBLE TO OPERATE MICROSTRIP CIRCUITS IN PARALLEL TO OBTAIN RESONANCES SPACED HALF THE SPACING FOR EACH INDIVIDUAL CIRCUIT. ELECTRONIC TUNING OF THE WHOLE SET OF FREQUENCY STATES BY MEANS OF A VARACTOR WAS DEMONSTRATED. THE SWITCH-ON CHARACTERISTIC OF THE STATES WAS STUDIED, AND IT IS SHOWN THAT THE MEMORIZER'S RF OUTPUT SIGNAL IS PHASE-LOCKED TO THE INPUT SIGNAL WITHIN 50 NS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A013 318 9/2
STANFORD UNIV CALIF STANFORD ELECTRONICS LABS

COMPUTER PERFORMANCE MEASUREMENT AND EVALUATION METHODS: ANALYSIS AND APPLICATIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUN 74 180P SVOBODOVA,LIBA ;
REPT. NO. SU-SEL-74-036, TR-72
CONTRACT: N00014-67-A-0112-0044

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES REPORT DATED JUN 74, AD/A-000 947.

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *COMPUTER PROGRAMMING, MONITORS, PERFORMANCE, INTERFACES, MEMORY DEVICES, MATHEMATICAL MODELS, SYSTEMS ANALYSIS, THESES (U)
IDENTIFIERS: *COMPUTER PERFORMANCE EVALUATION, *COMPUMETRICS (U)

THIS STUDY CONCENTRATES ON THE MEASUREMENT PROBLEM OF A COMPLEX COMPUTER SYSTEM. SEVERAL ISSUES ARE ATTACKED: SYSTEM REPRESENTATION, EVALUATION AND APPLICATION OF COMPUTER PERFORMANCE EVALUATION TOOLS, POWER OF A PERFORMANCE MONITOR, DESIGN OF A PERFORMANCE MONITOR. FOR AN EXTERNAL OBSERVER, PERFORMANCE OF A COMPUTER SYSTEM IS THE QUALITY AND THE QUANTITY OF SERVICE DELIVERED BY THE SYSTEM. HOWEVER, A COMPUTER SYSTEM IS A HIERARCHY OF SEVERAL LEVELS, THE LOWEST LEVEL BEING THE CIRCUIT LEVEL, THE HIGHEST THE SOFTWARE SUPPORT LEVEL. PERFORMANCE OF THE SYSTEM AS A WHOLE IS DETERMINED BY PERFORMANCE OF INDIVIDUAL LEVELS. A CONCEPTUAL MODEL OF AN EVALUATED COMPUTER SYSTEM, THE P-MODEL, IS DEFINED IN THIS STUDY USING THE PRINCIPLES OF GENERAL SYSTEMS THEORY; IT PROVIDES A CONVENIENT UNIFORM DESCRIPTION FOR OBSERVING A COMPUTER SYSTEM AT ANY OF THESE LEVELS. THE ELEMENTS OF THE P-MODEL ARE THE LEVEL COMPONENTS; THE OUTPUT ARE PERFORMANCE MEASURES RELEVANT TO THE PARTICULAR LEVEL AND THE PURPOSE OF EVALUATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A013 829 9/2
ARMY COMPUTER SYSTEMS COMMAND FORT BELVOIR VA

AN ALGORITHM FOR BLOCKING FACTOR OPTIMIZATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 75 40P PICKARD,LARRY A. ;RAINES, MARVIN D. ;
REPT. NO. USACSC-AT-75-03
PROJ: DA-SX-865803-MY-10
TASK: SX-865803-MY-1002

UNCLASSIFIED REPORT

DESCRIPTORS: *FILES(RECORDS), *MAGNETIC TAPE, *MAGNETIC DISKS, *BLOCKING, ALGORITHMS, OPTIMIZATION, MATHEMATICAL PREDICTION, CENTRAL PROCESSING UNITS, DIGITAL COMPUTERS, SERIAL PROCESSORS, SEQUENTIAL (U)
IDENTIFIERS: IBM 360 COMPUTERS, *BLOCKING FACTORS, PERFORMANCE MONITORING, *SEQUENTIAL FILES, *COMPUTER PERFORMANCE EVALUATION (U)

THIS REPORT DESCRIBES A PERFORMANCE ENHANCEMENT STUDY CARRIED OUT TO EXAMINE THE IMPACT OF BLOCKING FACTORS ON PROGRAM RUN TIME IN A FIXED PARTITION ENVIRONMENT. INITIAL ANALYSIS IS DESCRIBED TO DETERMINE BLOCKING FACTOR BEHAVIOR. THE RESULTS OF THIS ANALYSIS FORMS THE BASIS FOR THE DEVELOPMENT OF A PERFORMANCE ENHANCEMENT UTILITY ROUTINE TO AUTOMATICALLY PREDICT THE BEST BLOCKING ASSIGNMENT FOR TAPE AND SEQUENTIAL DISK FILES TO MINIMIZE PROGRAM RUN TIME. THE DERIVATION OF THE APPROPRIATE MATHEMATICAL OPTIMIZATION ALGORITHM AND THE UNDERLYING ASSUMPTIONS INHERENT IN THE ALGORITHM ARE EXPLAINED. SUMMARY RESULTS AND TYPICAL TIME SAVINGS FROM THE USE OF THE ALGORITHM ARE PROVIDED TO INDICATE THE INCREASE IN RESOURCE UTILIZATION THAT CAN BE REALIZED FROM IMPLEMENTING THE ROUTINE. DETAILED PROCEDURES ON HOW TO USE THIS TOOL ARE ALSO PROVIDED. (AUTHOR) (U)

AD-A031 200 DEFENSE DOCUMENTATION CENTER ALEXANDRIA VA F/G 9/2
COMPUTERS IN INFORMATION SCIENCES: COMPUTER COMPONENTS.(U)
OCT 76
UNCLASSIFIED DDC/BIB-76/09 NL

3 OF 4
AD A031 200



DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A014 364 9/2 20/12
ROCKWELL INTERNATIONAL CORP ANAHEIM CALIF ELECTRONICS RESEARCH DIV

EXPLORATORY DEVELOPMENT OF MAGNETIC BUBBLE DOMAIN MATERIAL FOR APPLICATION IN AIR FORCE SOLID STATE MASS MEMORY SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 27 NOV 72-30 NOV 74, MAR 75 98P HEINZ,D. M. ;ELLIOTT,M. T. ;HENRY,R. D. ;STEARNS,F. S. ;
REPT. NO. C73-4.25/501
CONTRACT: F33615-73-C-5017
PROJ: AF-7371
TASK: 737103
MONITOR: AFML TR-75-12

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *MEMORY DEVICES, *MAGNETIC MATERIALS, *THIN FILM STORAGE DEVICES, GARNET, GERMANIUM COMPOUNDS, GALLIUM COMPOUNDS, IRON COMPOUNDS, RARE EARTH ELEMENTS, MAGNETIC DOMAINS, EPITAXIAL GROWTH, MAGNETIC RESONANCE, VAPOR DEPOSITION, THIN FILMS, RADIATION EFFECTS, STRESSES, TEMPERATURE (U)
IDENTIFIERS: *MAGNETIC BUBBLE DOMAINS, *MAGNETIC FILM MEMORIES, LIQUID PHASE EPITAXY, CHEMICAL VAPOR DEPOSITION, FERROMAGNETIC RESONANCE (U)

THE OBJECTIVES OF THIS PROGRAM WERE TO DEVELOP BUBBLE DOMAIN MATERIALS WHICH PERFORM IN A MILITARY ENVIRONMENT AND MEET DEVICE GOALS OF A BIT DENSITY OF 1M BIT/SQ. IN., A DATA RATE OF 1 MHZ AND AN OPERATING TEMPERATURE RANGE OF -25 TO 75C. ALL OF THESE PROGRAM OBJECTIVES HAVE SUBSTANTIALLY BEEN MET. THE MILITARY ENVIRONMENT WAS CONSIDERED TO CONSIST OF EXTREMES OF TEMPERATURE, DYNAMIC MECHANICAL STRESS AND RADIATION. BUBBLE DEVICE OPERATION OVER THE TEMPERATURE RANGE OF -25 TO 75C WAS ADDRESSED IN THE DESIGN OF GARNET COMPOSITIONS. THE EFFECTS OF SHOCK AND VIBRATION WERE EXPLORED ON BUBBLE DOMAIN GARNET FILMS, AND RESULTS WERE OBTAINED THAT REVEALED THE ABSENCE OF POTENTIALLY DELETERIOUS MAGNETOMECHANICAL EFFECTS. RADIATION STUDIES ON A RELATED PROGRAM WHICH WAS COORDINATED WITH THIS ONE SHOW THE BUBBLE GARNETS TO BE VERY TOLERANT OF NUCLEAR RADIATION. THUS BUBBLE DOMAIN GARNET MATERIALS SHOULD PERFORM SATISFACTORILY IN SUCH AN ENVIRONMENT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A014 521 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

ON THE RACE-FREE AND MINIMAL COST CODING OF THE INTERNAL STATES IN COMPUTER AIDED DESIGN OF SEQUENTIAL SWITCHING SYSTEMS. ON THE PROGRAMMING SYSTEM RENDIS-S FOR THE DESIGN OF SEQUENTIAL SWITCHING SYSTEMS, (U)

JUL 75 27P HALLBAUER,G. ;HELTZIG,H. F. ;HUMMITZSCH,P. ;
REPT. NO. FTD-ID(RS)I-1440-74

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MESSEN-STEUERN-REGELN (EAST GERMANY) V17 N3 P95-102 MAR 74.

DESCRIPTORS: *SWITCHING CIRCUITS, *CODING, LOGIC CIRCUITS, FLIP FLOP CIRCUITS, COMPUTER AIDED DESIGN, TRANSLATIONS, EAST GERMANY (U)
IDENTIFIERS: LOGIC DESIGN (U)

A NUMBER OF PROPERTIES OF A SEQUENTIAL SWITCHING SYSTEM DEPEND ON THE CODING OF THE INTERNAL STATES. THE CODING, FOR EXAMPLE, HAS AN EFFECT ON THE LOGIC ELEMENT REQUIREMENTS, THE SPEED OF SWITCHING, AND THE MEMORY REQUIREMENTS. UNCLOCKED SEQUENTIAL SWITCHING NETWORKS MAY, IN ADDITION, EXHIBIT SO-CALLED RACE CONDITIONS WHICH RESULT IN FAULTY OPERATION OF THE NETWORK. THESE RACE CONDITIONS ARE ATTRIBUTABLE TO THE NON-IDEAL TRANSITION BEHAVIOR OF REAL COMPONENTS. THE CODING PROCEDURE DESCRIBED IN THE REPORT WAS PRINCIPALLY DEVISED FOR THE COMPUTER-AIDED DESIGN OF INDUSTRIAL CONTROLS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A014 758 9/2
CALIFORNIA UNIV LOS ANGELES DEPT OF COMPUTER SCIENCE

THE RENEWAL MODEL FOR PROGRAM BEHAVIOR, (U)

FEB 74 19P OPDERBECK,H. ;CHU,W. W. ;
CONTRACT: N00014-69-A-0200-4027
PROJ: NR-048-129

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN SIAM JNL. ON COMPUTERS, V4 N3 P356-374 SEP 75.

DESCRIPTORS: *MEMORY DEVICES, *COMPUTER PROGRAMS, DATA STORAGE SYSTEMS, CENTRAL PROCESSING UNITS, ADDRESSING, COMPUTER ARCHITECTURE, MODELS, ALGORITHMS, REPRINTS (U)
IDENTIFIERS: *VIRTUAL MEMORIES (U)

A MODEL FOR PROGRAM BEHAVIOR, THE RENEWAL MODEL, IS INTRODUCED; ITS PROPERTIES ARE DISCUSSED, AND ITS ABILITY TO MODEL THE BEHAVIOR OF REAL PROGRAMS IS INVESTIGATED. USING THIS RENEWAL MODEL, SEVERAL THEOREMS ARE DERIVED WHICH DESCRIBE THE PERFORMANCE OF THE WORKING SET REPLACEMENT ALGORITHM. THEN THE RENEWAL MODEL IS USED TO EVALUATE THE PERFORMANCE OF A REPLACEMENT ALGORITHM FOR TWO-LEVEL DIRECTLY ADDRESSABLE MEMORY HIERARCHIES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A014 823 9/2 9/5
AEROSPACE CORP EL SEGUNDO CALIF ENGINEERING SCIENCE OPERATIONS

MICROPROCESSORS AND MICROCOMPUTERS, (U)

MAY 75 35P THEIS,DOUGLAS J. ;
REPT. NO. TR-0075(5112)-7
CONTRACT: F04701-74-C-0075
MONITOR: SAMSO TR-75-206

UNCLASSIFIED REPORT

DESCRIPTORS: *MICROCOMPUTERS, *DATA PROCESSING, *INTEGRATED CIRCUITS, MEMORY DEVICES, COMPUTER PROGRAMMING, MICROPROGRAMMING, CHIPS(ELECTRONICS), PRINTED CIRCUITS, MICROELECTRONICS, COMPUTER PROGRAMS, RANDOM ACCESS COMPUTER STORAGE, READ ONLY MEMORIES (U)
IDENTIFIERS: *MICROPROCESSORS, LARGE SCALE INTEGRATED CIRCUITS (U)

AN OVERVIEW OF THE LATEST MICROPROCESSOR AND MICROCOMPUTER PRODUCTS IS PRESENTED. MICROPROCESSORS ARE IN FACT THE CENTRAL PROCESSING UNIT PORTION OF A COMPUTER ON A CHIP. A MICROPROCESSOR CHIP OR CHIPS TOGETHER WITH MEMORY CHIPS AND INPUT-OUTPUT CHIPS QUALIFY AS A MICROCOMPUTER AND ARE AVAILABLE TODAY ON A SINGLE PRINTED CIRCUIT BOARD. THE ARCHITECTURAL FEATURES AND THE MICROELECTRONIC TECHNOLOGIES USED TO IMPLEMENT THESE DEVICES ARE COVERED. THE MICROPROCESSOR SURVEY INCLUDES 18 DEVICES, AND THE MICROCOMPUTER SURVEY HAS 28 MACHINES. THE KINDS OF SOFTWARE NEEDED TO PROGRAM THEM AND SOME FUTURE TRENDS FOR THESE PRODUCTS ARE DISCUSSED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 033 9/2
AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB OHIO

A CDC 6600-BASED CROSS-ASSEMBLER FOR THE HP2114 MINICOMPUTER. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 75 116P BROWNSTEIN,BARRY J. ;
REPT. NO. AFAPL-TR-75-31

UNCLASSIFIED REPORT

DESCRIPTORS: *MINICOMPUTERS, *ASSEMBLERS, TURBINES, EXHAUST SYSTEMS, COMPUTER PROGRAM DOCUMENTATION, PUNCHED TAPE, SHIFT REGISTERS, MEMORY DEVICES, BINARY NOTATION (U)
IDENTIFIERS: CDC 6600 COMPUTERS, HP 2114 COMPUTERS, COMPUTER SOFTWARE, *CROSS ASSEMBLERS (U)

ONE OF THE DIFFICULTIES IN PROGRAMMING A MINICOMPUTER WITH A MINIMUM COMPLEMENT OF PERIPHERAL DEVICES IS THE NEED TO USE PAPER TAPE SOFTWARE. THIS SOFTWARE IS NORMALLY PONDEROUS TO USE, PROVIDES A MINIMUM OF DIAGNOSTICS, AND VERY LITTLE LANGUAGE MODIFICATION CAPABILITY. THE CROSS-ASSEMBLER DESCRIBED IN THIS REPORT RUNS ON THE CDC 6600, USING HIGHER SPEED PERIPHERALS, CARD INPUT, AND IS USED VERY MUCH LIKE AN ASSEMBLY LANGUAGE FOR A LARGE COMPUTER SYSTEM, SUCH AS COMPASS.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 041 9/2
HARVARD COLL CAMBRIDGE MASS PRESIDENT AND FELLOWS

RESEARCH IN PROGRAM OPTIMIZATION TECHNIQUES. (U)

DESCRIPTIVE NOTE: REPT. FOR 1 JUN 74-31 MAY 75,
JUN 75 29P CHEATHAM,THOMAS E. , JR;
CONTRACT: F19628-74-C-0208
MONITOR: ESD TR-75-81

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMMING, *HIGH LEVEL LANGUAGES, *DATA STORAGE SYSTEMS, COMPILERS, OPTIMIZATION, COMPUTER PROGRAMS, MACHINE CODING (U)
IDENTIFIERS: COMPUTER APPLICATIONS, STRUCTURED PROGRAMMING (U)

IN THE CONTEXT OF THE ECL PROGRAMMING SYSTEM, GENERAL TECHNIQUES FOR PROGRAM OPTIMIZATION AT HIGH LEVELS OF LANGUAGE AND SPECIAL PURPOSE TECHNIQUES TO ENHANCE USE OF ECL FOR SYSTEMS PROGRAMMING HAVE BEEN STUDIED. THE SPECIFIC PROBLEMS DISCUSSED ARE THE EFFICIENT REPRESENTATION OF KNOWLEDGE ABOUT PROGRAMS, THE USE OF MEASUREMENTS TO GUIDE PROGRAM IMPROVEMENT, COMPILER OPTIMIZATION UNDER STRICT RESOURCE CONSTRAINTS AND USER CONTROL OF MACHINE LEVEL CODE OPTIMIZATIONS SUCH AS REGISTER ASSIGNMENT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 112 9/5 9/3
PRINCETON UNIV N J DEPT OF ELECTRICAL ENGINEERING

A NEW HARDWARE REALIZATION OF DIGITAL FILTERS. (U)

FEB 74 8P PELED,ABRAHAM ;LIU,BEDE ;
CONTRACT: AF-AFOSR-2101-71, NSF-GK-24187
PROJ: AF-9749
TASK: 974906
MONITOR: AFOSR TR-75-1265

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON ACOUSTICS, SPEECH AND SIGNAL PROCESSING, VASSP-22 N6 P456-462 DEC 74.

DESCRIPTORS: *DIGITAL FILTERS, *SIGNAL PROCESSING, SEMICONDUCTOR DEVICES, REAL TIME, COSTS, POWER, MEMORY DEVICES, ERRORS, INTEGRATED CIRCUITS, REPRINTS (U)
IDENTIFIERS: TRANSISTOR TRANSISTOR LOGIC, LARGE SCALE INTEGRATION (U)

A NEW APPROACH TO THE IMPLEMENTATION PROBLEM OF DIGITAL FILTERS IS PRESENTED. THIS APPROACH CAPITALIZES ON RECENT ADVANCES IN SEMICONDUCTOR MEMORY TECHNOLOGY AND IS SHOWN TO OFFER SIGNIFICANT REDUCTIONS IN COST AND POWER CONSUMPTION FOR THE SAME SPEED OF OPERATION AS THAT OF EXISTING REALIZATIONS. FURTHERMORE, THIS APPROACH MAKES POSSIBLE SPEEDS OF OPERATION WHICH CANNOT BE ACHIEVED BY EXISTING REALIZATIONS. THIS PROPOSED APPROACH YIELDS A VERY FLEXIBLE HARDWARE CONFIGURATION AND A DISCUSSION OF THE VARIOUS OPTIONS IS PRESENTED TOGETHER WITH A COMPARISON TO EXISTING REALIZATIONS. THE MEAN-SQUARED ERROR RESULTING FROM THE USE OF FINITE WORD LENGTH IS ANALYZED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 125 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER PROJECT. (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. 1 JAN-30 JUN 75,
JUN 75 65P
CONTRACT: MDA-903-74-C-0225, DARPA ORDER-2687

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 31 DEC 74, AD-A008 877.

DESCRIPTORS: *DATA STORAGE SYSTEMS, *COMMUNICATIONS NETWORKS, TIME SHARING, COMPILERS, COMPUTER ARCHITECTURE, ON LINE SYSTEMS, DATA MANAGEMENT (U)
IDENTIFIERS: *DATACOMPUTER PROJECT, *COMPUTER NETWORKS, TENEX SYSTEM (U)

THIS REPORT DESCRIBES THE WORK ON THE DATACOMPUTER, A NETWORK DATA UTILITY, FROM JANUARY 1, 1975 TO JUNE 30, 1975. THE WORK IS DESCRIBED IN DETAIL IN SECTIONS 2-8. SECTION 2 IS A DISCUSSION OF THE DATACOMPUTER ARCHITECTURE, WITH EMPHASIS ON THE INCREASING LEVELS OF FUNCTIONAL ABSTRACTION BEGINNING WITH THE HARDWARE AND MOVING OUTWARD. SECTION 3 IS A REPORT ON THE USAGE OF THE DATACOMPUTER DURING THE REPORTING PERIOD, AND A DISCUSSION OF NEW WORK BEING DONE IN THE USER SERVICES AND SUPPORT AREA. SECTION 4 IS A DETAILED DISCUSSION OF THE WORK ON THE DATACOMPUTER SOFTWARE CARRIED OUT DURING THE PERIOD UNDER DISCUSSION. MOST OF THE EFFORT WAS CONCENTRATED IN THIS AREA. SECTION 5 DISCUSSES THE ON-GOING WORK OF DOCUMENTING THE DATACOMPUTER. SECTION 6 DESCRIBES PROGRESS MADE IN THE AREA OF DATACOMPUTER HARDWARE AND OPERATIONAL SUPPORT. SECTION 7 IS A BRIED OVERVIEW OF THE NMRO WORK AND ITS IMPLICATIONS FOR THE DATACOMPUTER IN GENERAL. FINALLY, SECTION 8 IS A CATCH-ALL FOR MINOR BUT IMPORTANT AREAS OF DATACOMPUTER DEVELOPMENT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 498 9/2
MASSACHUSETTS INST OF TECH CAMBRIDGE

DISTINGUISHABLE CODEWORD SETS FOR SHARED MEMORY, (U)

DEC 74 10P ELIAS,PETER ;
CONTRACT: DAHC04-71-C-0039, NSF-GK-37582
MONITOR: ARO 10197.7-EL

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON INFORMATION THEORY, VIT-21 N4 P392-399 JUL 75.

DESCRIPTORS: *RANDOM ACCESS COMPUTER STORAGE, *MEMORY DEVICES, *INFORMATION THEORY, CODING, INEQUALITIES, COMPUTER PROGRAMS, DATA PROCESSING, REPRINTS (U)
IDENTIFIERS: *CODE WORDS (U)

IN DATA PROCESSING, A TRANSMITTER T AND RECEIVER R COMMUNICATE VIA A RANDOM-ACCESS MEMORY M THAT THEY SHARE WITH A SET U OF OTHER USERS. T SELECTS A CODEWORD C FROM A SET C KNOWN TO R AND STORES C IN SOME OF THE CELLS OF M, NOT NECESSARILY ADJACENT TO ONE ANOTHER. U DOES NOT CHANGE THE VALUES T HAS STORED BUT FILLS IN THE VALUES STORED IN THE OTHER CELLS OF M. C IS SAID TO BE DISTINGUISHABLE IF R CAN ALWAYS FIND WHICH CODEWORD T STORED IN M NO MATTER WHAT U STORES IN THE OTHER CELLS AND TO BE LOCALLY DISTINGUISHABLE IF R CAN DO SO READING ONLY THE VALUES WRITTEN. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A015 808 9/5 9/2
ILLINOIS UNIV AT URBANA-CHAMPAIGN COORDINATED SCIENCE LAB

COMPUTER AIDED ANALYSIS OF INTEGRATED INJECTION LOGIC. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
SEP 75 46P NIEHAUS,JEFFREY ALAN ;
REPT. NO. R-689, UILU-ENG-75-2224
CONTRACT: DAAB07-72-C-0259

UNCLASSIFIED REPORT

DESCRIPTORS: *INTEGRATED CIRCUITS, *LOGIC CIRCUITS, DIGITAL SYSTEMS, COMPUTERIZED SIMULATION, THESES, GATES(CIRCUITS), COMPUTER APPLICATIONS (U)
IDENTIFIERS: *INTEGRATED INJECTION LOGIC CIRCUITS, COMPUTER AIDED ANALYSIS, LARGE SCALE INTEGRATED CIRCUITS, LOGIC DESIGN, SPICE COMPUTER PROGRAM (U)

INTEGRATED INJECTION LOGIC IS A LOW POWER, HIGH DENSITY BIPOLAR LOGIC FAMILY. THE SWITCHING SPEED IS INVERSELY PROPORTIONAL TO THE CURRENT LEVELS USED, WHICH CAN VARY ANYWHERE FROM THE NA TO MICROAMP RANGE. SINCE INTEGRATED INJECTION LOGIC IS A CURRENT SWITCHING LOGIC, IT CAN OPERATE OVER A WIDE RANGE OF SUPPLY VOLTAGES. BESIDES POSSESSING A LOW SPEED POWER PRODUCT, IT HAS THE HIGHEST PACKING DENSITY OF ANY STANDARD LOGIC FAMILY. THE PAPER COMPARES RESULTS OF DERIVED EQUATIONS WITH CIRCUIT SIMULATIONS RUN UNDER THE BERKELEY SPICE PROGRAM ON THE DEC-10 COMPUTER. LOGIC DESIGN WITH THESE MULTIPLE-OUTPUT, SINGLE-INPUT DEVICES IS ALSO ANALYZED AND SIMULATED ON THE COMPUTER. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 137 9/2
FOREIGN TECHNOLOGY DIV WRIGHT-PATTERSON AFB OHIO

SUCCESSFUL INTERNATIONAL TESTING OF JSEP EC 7902 - CZECHOSLOVAK COMPOUND UNIT FOR TAPE PUNCHING, (U)

MAY 75 17P VILNER,L. ;KOVARIK,J. ; KEPKA,M. ;
REPT. NO. FTD-HC-23-1130-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: EDITED TRANS. OF MECHANIZACE, AUTOMATIZACE ADMINISTRATIVY (USSR) V13 N12 P479-482, 487 1973.

DESCRIPTORS: *INPUT OUTPUT DEVICES, DATA PROCESSING, TESTS, PUNCHED TAPE, CZECHOSLOVAKIA, TRANSLATIONS (U)

;CONTENTS: SUCCESSFUL INTERNATIONAL TESTING OF JSEP EC 7902 - CZECHOSLOVAK COMPOUND UNIT FOR TAPE PUNCHING; SERVICE COMPUTER CENTERS MASCHINELLES RECHNEN IN THE GERMAN DEMOCRATIC REPUBLIC; INTERNATIONAL TESTING OF THE OUTPUT COLUMN PUNCHER EC 7014 IN NATIONAL ENTERPRISE ARITHMA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A016 482 9/2 1/3
TEXAS INSTRUMENTS INC DALLAS

DISTRIBUTED PROCESSOR/MEMORY ARCHITECTURES DESIGN PROGRAM. (U)

DESCRIPTIVE NOTE: FINAL REPT. 10 DEC 73-7 DEC 74,
FEB 75 500P CONSOLVER,G. ;ACKLEY,D. ;
RICKARD,M. ;MCAFEE,R. ;SHIPCHANDLER,T. ;
CONTRACT: F33615-74-C-1018
PROJ: AF-2003
TASK: 200304
MONITOR: AFAL TR-75-80

UNCLASSIFIED REPORT

DESCRIPTORS: *AVIONICS, *COMPUTER PROGRAMMING, *CENTRAL PROCESSING UNITS, MEMORY DEVICES, COMPUTER ARCHITECTURE, LOGIC CIRCUITS, SHIFT REGISTERS, INTERFACES, COMPUTERIZED SIMULATION, DATA BASES, COMPUTER PROGRAMS, FORTRAN (U)
IDENTIFIERS: DISTRIBUTED COMPUTER SYSTEMS, COMPUTER NETWORKS, FAULT TOLERANT COMPUTING (U)

THE PURPOSE OF DISTRIBUTED PROCESSOR/MEMORY ARCHITECTURE (DP/M) DESIGN PROGRAM WAS TO EXTEND THE DP/M AVIONIC SYSTEM PROCESSING CONCEPT TO A DETAILED SYSTEM HARDWARE AND SOFTWARE DESIGN. THE FUNCTIONAL DESIGN FOR THE DP/M PROCESSING ELEMENT (PE) IS SUMMARIZED, INCLUDING THE PROCESSOR, MEMORY, INPUT/OUTPUT INTERFACE, AND A DUAL-LEVEL TIME-DIVISION-MULTIPLEX BUS INTERFACE UNIT. A SET OF SIMULATION AND ANALYSIS PROGRAMS WAS DEVELOPED FOR MODELING BOTH THE HIGH-LEVEL NETWORK INTERACTION AMONG INTERCONNECTED PROCESSING ELEMENTS AND THE DETAILED INTERNAL OPERATION OF THE PE. OTHER MAJOR AREAS EXAMINED WERE THE EXECUTIVE CONTROL SOFTWARE, THE PROCESS CONSTRUCTION METHODOLOGY REQUIRED TO DEVELOP AND ALLOCATE REAL-TIME SOFTWARE FOR DP/M, AND METHODS THAT COULD BE USED WITH DP/M TO PROMOTE AVIONIC SYSTEM FAULT TOLERANCE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 688 9/1 9/2
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

COHERENT INTEGRATION AND CORRELATION IN A MODIFIED ACOUSTOELECTRIC MEMORY CORRELATOR. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,
MAY 75 4P INGEBRIGTSEN,KJELL A. ;
STERN,ERNEST ;
REPT. NO. JA-4524
CONTRACT: F19628-73-C-0002, ARPA ORDER-2006
PROJ: DA-7-X-263304-D-215
MONITOR: ESD TR-75-273

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED PHYSICS LETTERS, V27 N4 P170-172, 15 AUG 75.

DESCRIPTORS: *SCHOTTKY BARRIER DEVICES, *MEMORY DEVICES, *CORRELATORS, SEMICONDUCTOR DIODES, ANALOG SIGNALS, ARRAYS, INTEGRATION, POLYCRYSTALLINE, SILICON, REPRINTS, CHARGE CARRIERS (U)
IDENTIFIERS: *ACOUSTOELECTRIC MEMORY CORRELATORS (U)

THE STORAGE, CORRELATION, AND COHERENT INTEGRATION OF ANALOG SIGNALS IN A SCHOTTKY DIODE ACOUSTOELECTRIC MEMORY CORRELATOR IS DESCRIBED. THE EXPERIMENTS DEMONSTRATE STORAGE OF PHASE AND AMPLITUDE OF A 70-MHZ SIGNAL BY THE DISTRIBUTION OF CHARGE IN AN ARRAY OF SCHOTTKY DIODES. COHERENT INTEGRATION IS OBTAINED BY ACCUMULATING A SUCCESSION OF CHARGES IN HIGHLY RESISTIVE POLYCRYSTALLINE SILICON ISLANDS. COHERENT INTEGRATION OVER A TIME PERIOD OF SEVERAL TENS OF MILLISECONDS IS REPORTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A016 689 9/2 9/5
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

MULTICHIP INTEGRATED CIRCUIT MEMORY WITH PHOTOFORMED PLATED CONDUCTORS. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,
JUN 74 9P GUDITZ,ELIS A. ;BURKE, ROBERT L. ;
REPT. NO. JA-4896
CONTRACT: F19628-73-C-0002
PROJ: AF-649L
MONITOR: ESD TR-75-228

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON PARTS, HYBRIDS, AND PACKAGING, VPHP-11 N2 P89-96 JUN 75.

DESCRIPTORS: *CHIPS(ELECTRONICS), *INTEGRATED CIRCUITS, *MEMORY DEVICES, PLASTICS, NICKEL, SUBSTRATES, CIRCUIT INTERCONNECTIONS, REPRINTS (U)
IDENTIFIERS: PHOTOFORMED PLATED CONDUCTORS (U)

A 20-CHIP INTEGRATED CIRCUIT MEMORY HAS BEEN CONSTRUCTED UTILIZING TECHNIQUES OF PLASTIC EMBEDMENT, PHOTOFORMATION OF PLASTICS, AND SELECTIVE ELECTROLESS METAL DEPOSITION PREVIOUSLY REPORTED. THIS PAPER IS A CONTINUATION AND UPDATE OF THAT EARLIER WORK. IT HAS BEEN DEMONSTRATED THAT GROUPS OF PASSIVATED INTEGRATED CIRCUIT CHIPS CAN BE ACCURATELY PLACED IN ARRAY POSITIONS, EMBEDDED IN PLASTIC, AND INTERCONNECTED WITH ELECTROLESS NICKEL CONDUCTORS DEPOSITED IN PHOTOFORMED MULTILAYERED CONDUCTOR PATHS SEPARATED BY SELECTIVELY PHOTOFORMED PLASTIC DIELECTRIC LAYERS. THERMAL PATHS OF NICKEL, PLATED DIRECTLY TO THE BACKS OF THE CHIPS AND TO AN ADHERED PHOTOETCHED METAL SUBSTRATE, EFFECTIVELY REMOVE HEAT FROM THE CHIPS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 703 9/1 9/2 20/1
MASSACHUSETTS INST OF TECH LEXINGTON LINCOLN LAB

A SCHOTTKY-DIODE ACOUSTIC MEMORY AND CORRELATOR. (U)

DESCRIPTIVE NOTE: JOURNAL ARTICLE,
FEB 75 4P INGEBRIDTSEN,KJELL A. ;
COHEN,RONALD A. ;MOUNTAIN,ROBERT W. ;
REPT. NO. JA-4489
CONTRACT: F19628-73-C-0002, ARPA ORDER-600
PROJ: DA-7-X-263304-D-215
MONITOR: ESD TR-75-235

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN APPLIED PHYSICS LETTERS, V26 N11 P596-598, 1 JUN 75.

DESCRIPTORS: *SCHOTTKY BARRIER DEVICES, *MEMORY DEVICES, *ACOUSTIC SIGNALS, *CORRELATORS, SURFACE WAVES, DELAY LINES, MATRICES(CIRCUITS), SILICON, NIOBATES, REPRINTS (U)
IDENTIFIERS: LITHIUM NIOBATE (U)

EXPERIMENTS DEMONSTRATE THAT IMAGES OF ACOUSTIC SIGNALS CAN BE STORED FOR TENS OF MSEC IN A MATRIX OF SCHOTTKY DIODES ON A SILICON SURFACE ADJACENT TO A LITHIUM NIOBATE SURFACE-WAVE DELAY LINE. THE EXPERIMENTS SHOW CHARGING TIMES OF THE ORDER OF 10 NSEC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 940 9/2 9/1
GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT
SCHENECTADY N Y

DESIGN, FABRICATION, AND EVALUATION OF AN ELECTRON BEAM ADDRESSABLE HIGH INFORMATION DENSITY MEMORY TUBE. (U)

DESCRIPTIVE NOTE: QUARTERLY REPT. NO. 1, 1 MAR-30 MAY 75.
OCT 75 35P LEMMOND,C. Q. ;HUGHES,W. C. ;KIRKPATRICK,C. G. ;POSSIN,G. E. ; FISHER,J. K. ;
REPT. NO. SRD-75-099
CONTRACT: DAAB07-75-C-1312
PROJ: DA-IS-762705-AH-94-D2
TASK: IS-762705-AH-94-D-205
MONITOR: ECOM 1312-1-75

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, *STORAGE TUBES, ELECTRON OPTICS, RANDOM ACCESS COMPUTER STORAGE (U)
IDENTIFIERS: COMPUTER STORAGE DEVICES (U)

THE TUBE IS TO BE A SEALED-OFF, SELF-CONTAINED UNIT CONSISTING OF AN ELECTRON SOURCE, THE NECESSARY ELECTRON OPTICS FOR PERFORMING THE REQUIRED WRITE AND READ FUNCTIONS, AND A STORAGE STRUCTURE CONTAINING APPROXIMATELY 1.8 X 10 TO THE 7TH POWER ELEMENTS. A RELIABLE AND WELL-ENGINEERED MEMORY TUBE DEMONSTRATING LIFE AND ENVIRONMENTAL CHARACTERISTICS ARE OBJECTIVES OF THIS PROGRAM. TWO MEMORY TUBES ARE THE GOAL OF THE PROGRAM. VIBRATION TESTS WERE CONDUCTED ON AN ELECTRON BEAM MEMORY TUBE FURNISHED GENERAL ELECTRIC BY THE U.S. ARMY ELECTRONICS COMMAND. THESE TESTS WILL DICTATE DESIGN CHANGES NECESSARY SO THAT AN IMPROVED TUBE WILL MEET VIBRATIONAL REQUIREMENTS. GENERAL ELECTRIC HAS MODIFIED ITS MEMORY TEST SYSTEM FOR TUBE PERFORMANCE TESTS, RFI TESTS AND TEMPERATURE TESTS. SEVERAL IMPROVEMENTS TO THE BEAMOS TUBE HAVE BEEN MADE AND ARE DESCRIBED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A016 951 9/2
KANSAS STATE UNIV MANHATTAN DEPT OF COMPUTER SCIENCE

RESEARCH INTO THE DEVELOPMENT OF A LOW-COST HARDWARE MONITOR. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JUL 75 271P WALLENTINE,V. ;ANDERSON,G. ;
KELLER,R. ;FISHER,P. ;
CONTRACT: DAHC04-74-G-0103
MONITOR: USACSC AT-75-07

UNCLASSIFIED REPORT

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *MINICOMPUTERS, *MONITORS, DATA PROCESSING TERMINALS, COMPUTER GRAPHICS, LOGIC CIRCUITS, COMPILERS, COMPUTER PROGRAMMING, COMPUTER PROGRAMS, FORTRAN (U)
IDENTIFIERS: *COMPUTER SYSTEMS HARDWARE, *COMPUTER PERFORMANCE EVALUATION, *COMPUTER HARDWARE MONITORS, FORTRAN 4 PROGRAMMING LANGUAGE (U)

THE EFFORT IN PURSUANCE OF THE STATED OBJECTIVE WAS CONCENTRATED ON THE DESIGN OF THE HARDWARE IN THE MONITOR, THE DESIGN OF THE SOFTWARE TO CONTROL THE HARDWARE, AND THE DEVELOPMENT OF A BASIC REPORTING PACKAGE USEFUL IN ANALYZING THE DATA COLLECTED. THE DESIGN OBJECTIVES OF THE HARDWARE MONITOR AND THE SOFTWARE INTERFACE BETWEEN THE MONITOR AND THE ANALYST WERE AS FOLLOWS: (1) TO PROVIDE ALL THE CAPABILITIES OF THOSE CURRENTLY AVAILABLE ON THE COMMERCIAL MARKET; (2) TO PROVIDE THE MEASUREMENT ANALYST A MORE FLEXIBLE MEASUREMENT TOOL WITH WHICH TO EXPLORE NEW MEASUREMENTS AND THEIR CORRELATIONS BEFORE INVESTING THE TIME AND EFFORT TO MANUALLY SET THE LOGIC FOR DESIRED MEASUREMENTS; (3) TO DEVELOP A MEASUREMENT FRONT-END FOR A CENTRAL PROCESSING SYSTEM (MINICOMPUTER) WHICH COULD BE USED TO MONITOR A LARGE RANGE OF SUBJECT SYSTEMS (TO PROVIDE A DEVICE CAPABLE OF TRACKING AT NANOSECOND SPEED AS WELL AS MILISECOND SPEED; (4) TO PROVIDE AN AUTOMATED METHOD OF ESTABLISHING (A LEVEL OF) CORRECTNESS OF THE MEASUREMENT (DATA) COLLECTED; (5) TO RELIEVE THE MEASUREMENT ANALYST OF DETAILED CONTROL OF THE HARDWARE MONITOR AND PERMIT HIM TO CONCENTRATE MORE INTENTLY ON THE MEASUREMENT EXPERIMENT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A017 313 9/5
GENERAL ELECTRIC CO PITTSFIELD MASS

DIGITAL MICROCIRCUIT CHARACTERIZATION AND SPECIFICATION. VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. FEB 74-MAR 75, AUG 75 262P OSTROWSKI,THOMAS M. ;
CONTRACT: F30602-74-C-0159
PROJ: AF-5519
TASK: 551904
MONITOR: RADC TR-75-216-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A017 314.

DESCRIPTORS: *MICROCIRCUITS, *INTEGRATED CIRCUITS, TEST METHODS, RELIABILITY(ELECTRONICS), SPECIFICATIONS, DIGITAL SYSTEMS, LOGIC CIRCUITS (U)

THE OBJECTIVE OF THE EFFORT WAS TO REVIEW PROPOSED MIL-M-38510 DIGITAL INTEGRATED CIRCUIT DETAIL SPECIFICATIONS FOR TECHNICAL ACCURACY, COMPLETENESS AND CONFORMANCE TO ESTABLISH MILITARY STANDARDS. THIS INCLUDED WORST CASE TEST SITUATIONS, CRITICAL TIMING PATHS AND GENERATION OF SPECIAL SCREENING PROCEDURES. COMPREHENSIVE LABORATORY INVESTIGATIONS WERE CONDUCTED ON LOW POWER SCHOTTKY DEVICES AND STANDARD SCHOTTKY VOLTAGE BREAKDOWN MODES TO OBTAIN DATA. THE LOW POWER SCHOTTKY STUDY INCLUDED DC, SWITCHING AND FUNCTIONAL CHARACTERISTICS, VENDOR COMPARISONS, SPECIFICATION GUIDELINES AND DESIGN RULES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A017 314 9/5 14/4
GENERAL ELECTRIC CO PITTSFIELD MASS

DIGITAL MICROCIRCUIT CHARACTERIZATION AND SPECIFICATION. VOLUME II AND III. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. FEB 74-MAR 75,
AUG 75 254P OSTROWSKI,THOMAS M. ;
CONTRACT: F30602-74-C-0159
PROJ: AF-5519
TASK: 551904
MONITOR: RADC TR-75-216-VOL-2/3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1, AD-A017 313.

DESCRIPTORS: *MICROCIRCUITS, *INTEGRATED CIRCUITS, TEST METHODS, RELIABILITY(ELECTRONICS), SPECIFICATIONS, DIGITAL SYSTEMS, LOGIC CIRCUITS (U)

THE VOLUME CONSISTS OF LOGIC INTEGRITY TEST (LIT) REPORTS FOR TESTS GENERATED FOR THE INTEGRATED CIRCUIT DEVICES LISTED IN THE INDEX. ALL OF THE TESTS ARE FOR DEVICES THAT EITHER ARE ALREADY INCLUDED IN MIL-M-38510 SLASH SHEETS OR ARE TO BE INCLUDED IN FUTURE SLASH SHEETS. LIT'S WERE GENERATED FOR TTL, STTL AND CMOS FAMILY TYPES. FOR THE CMOS DEVICES, ADDITIONAL TESTS WERE GENERATED TO CHECK FOR WORST CASE LEAKAGE PATHS. AS A PART OF THE TEST GENERATIONS, THE TESTS WERE PROVED BY TESTING REPRESENTATIVE DEVICES. IN SOME INSTANCES LIT'S WERE SUBMITTED BY INTEGRATED CIRCUIT MANUFACTURERS WHERE UPON THEY WERE CHECKED FOR ACCURACY AND COMPLETENESS AND THEN WERE EDITED, UPDATED AND PROOF TESTED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A017 509 14/5 9/2
STANFORD RESEARCH INST MENLO PARK CALIF

INVESTIGATION OF A PHOTODICHROIC MATERIAL FOR HOLOGRAPHIC STORAGE AND RECOVERY. (U)

DESCRIPTIVE NOTE: ANNUAL TECHNICAL REPT. SEP 74-JUL 75.
AUG 75 40P LEHMANN,MATT ;MAGEE,THOMAS J. ;ARMISTEAD,R. A. ;
CONTRACT: N00014-72-C-0260
PROJ: SRI-PYU-1777

UNCLASSIFIED REPORT

DESCRIPTORS: *HOLOGRAPHY, *PHOTOGRAPHIC MATERIALS, *CRYSTAL STRUCTURE, *MEMORY DEVICES, *OPTICAL STORAGE, ALKALI METALS, HALIDES, SODIUM, FLUORIDES, INPUT OUTPUT DEVICES, TEMPERATURE CONTROL (U)
IDENTIFIERS: PHOTODICHROIC MATERIALS, NONDESTRUCTIVE READOUT, HIGH DENSITY OPTICAL MEMORY, ALKALI HALIDES, *HOLOGRAPHIC INFORMATION STORAGE, OPTICAL CRYSTAL MEMORIES, PHOTOCHROMIC STORAGE SYSTEMS (U)

THIS REPORT DESCRIBES THE EXPERIMENTAL EFFORTS TO EVALUATE THE INFLUENCE OF SURFACE DEFECTS, TEMPERATURE, AND ACCELERATED FATIGUE TESTS CYCLING ON THE PROPERTIES OF THE ION-IMPLANTED DEVICE STRUCTURES AND HOLOGRAPHIC STORAGE AND RECOVERY.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A018 213 9/1 20/12
CALIFORNIA UNIV LOS ANGELES SCHOOL OF ENGINEERING AND APPLIED SCIENCE

LONG TERM MEMORY IN JUNCTION DEVICES USING MULTIVALENT TRAPPING IMPURITIES IN SILICON. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 FEB-30 JUN 75, OCT 75 127P DOMINGO,GEORGE ;HOLM-KENNEDY,JAMES W. ;KINGSLEY,WILLIAM ;NASH, JAMES G. ;
REPT. NO. UCLA-ENG-7575
CONTRACT: DAAB07-73-C-0306
PROJ: DA-1-S-762705-AH-94-R
TASK: 1-S-762705-AH-94-R-3
MONITOR: ECOM 73-0306-F

UNCLASSIFIED REPORT

DESCRIPTORS: *SCHOTTKY BARRIER DEVICES, *SEMICONDUCTOR DIODES, *SEMICONDUCTOR JUNCTIONS, TRAPPING(CHARGED PARTICLES), IMPURITIES, EPITAXIAL GROWTH, SILICON, SWITCHING, WAFERS, ZINC, ELECTRONS, ETCHING, MEMORY DEVICES, VALENCE, DOPING (U)
IDENTIFIERS: *FIELD INDUCED TRAPPING, *SCOTTKY DIODES, CHARGE STORAGE (U)

VARIOUS MULTIVALENT DOPANTS WERE INVESTIGATED WITH THE GOAL OF OBTAINING NONVOLATILE MULTILEVEL MEMORY DEVICES IN SILICON USING THE FIELD INDUCED TRAPPING (FIT) EFFECT. THE TEST STRUCTURES INCLUDED SCHOTTKY DIODES AND RESISTIVE BARS FABRICATED IN SILICON SUBSTRATES SUITABLY DOPED WITH MULTIVALENT DOPANTS. NOVEL DEVICE EFFECTS WERE OBSERVED AND ARE DESCRIBED. A MODEL FOR A NEGATIVE DIFFERENTIAL RESISTANCE SCHOTTKY BARRIER OSCILLATOR IS PROPOSED. OSCILLATIONS WITH FREQUENCIES VOLTAGE TURNABLE OVER THREE DECADES WERE OBSERVED. THERMAL SWITCHING IN RESISTIVE BARS IS DESCRIBED AND A THEORETICAL TREATMENT PRESENTED. TWO SEPARATE MODELS EMPLOYING ENTIRELY DIFFERENT MECHANISMS ARE ANALYZED. A THEORETICAL TREATMENT ON TRAPPING EFFECTS IN P-N JUNCTIONS UNDER LOW INJECTION CONDITIONS IS PRESENTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A018 341 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

A MULTIPROCESSOR DESIGN. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 75 284P BARKER,W. B. ;
REPT. NO. BBN-3126
CONTRACT: DAHC15-69-C-0179, F08606-73-C-0027
PROJ: ARPA ORDER-2351

UNCLASSIFIED REPORT

DESCRIPTORS: *MULTIPROCESSORS, *COMPUTER ARCHITECTURE, FAULT TOLERANT COMPUTING, PARALLEL PROCESSORS, MEMORY DEVICES, COST EFFECTIVENESS, RELIABILITY(ELECTRONICS), ALGORITHMS, DIGITAL COMPUTERS, COSTS, POWER (U)
IDENTIFIERS: DESIGN, PLURIBUS COMPUTERS, CDC 6600 COMPUTERS, COMPUTER SOFTWARE, ILLIAC 4 COMPUTERS (U)

THIS REPORT ADDRESSES THE ISSUES INVOLVED IN THE DESIGN OF A MULTIPROCESSOR. THE AUTHOR EXPLORES A WIDE RANGE OF DESIGN CONSIDERATIONS AND ARRIVES AT JUDGMENTS OF RELATIVE MERIT AT EACH DECISION POINT; THE RESULTS OF THESE DECISIONS LEAD TO A PARTICULAR MULTIPROCESSOR DESIGN. A REAL MULTIPROCESSOR HAS BEEN BUILT TO THIS DESIGN, AND ITS CONFIGURATION AND PERFORMANCE ARE DESCRIBED. THIS SYSTEM, THE PLURIBUS, HAS MANY ADVANTAGES OVER OTHER COMPUTER SYSTEMS IN COST-EFFECTIVENESS, RELIABILITY, MODULARITY, AND EXPANSIBILITY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A018 678 9/2
MARYLAND UNIV COLLEGE PARK DEPT OF COMPUTER SCIENCE

PDP 11/UNIVAC 1108 CROSS ASSEMBLER SYSTEM. (U)

DESCRIPTIVE NOTE: INTERIM TECHNICAL REPT.,
OCT 75 42P LAY,W. M. ;STEBBENS,A. K. ;POLLIZZI,J. A. ;
REPT. NO. TR-422
CONTRACT: N00014-67-A-0239-0032

UNCLASSIFIED REPORT

DESCRIPTORS: *ASSEMBLERS, *PROGRAMMING MANUALS, COMPUTER PROGRAMMING, MINICOMPUTERS, USER NEEDS, COMPUTER FILES, PUNCHED TAPE, DATA STORAGE SYSTEMS, SYMBOLS, MODES, COMPUTER ARCHITECTURE, MACROPROGRAMMING (U)
IDENTIFIERS: PDP 11 COMPUTERS, UNIVAC 1100 SERIES COMPUTERS (U)

THIS REPORT IS A USER'S MANUAL FOR THE PDP11 CROSS ASSEMBLER AND CROSS LINK-EDITOR WHICH RUNS AS THE UNIVAC 1100-SERIES MACHINES. THESE PROGRAMS ARE DESIGNED TO ACCEPT SOURCE PROGRAMS IN THE SAME FORMAT AS THE DEC PROGRAMS WHICH RUN ON THE PDP11, BUT WITH CERTAIN MINOR CHANGES. OBJECT MODULES PRODUCED BY THESE PROGRAMS IN FILES ON THE UNIVAC SYSTEM, PUNCHED ON PAPER TAPE OR TRANSMITTED DIRECTLY TO A PDP11 CONNECTED VIA A DATA SET. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A018 734 9/2
MARYLAND UNIV COLLEGE PARK DEPT OF COMPUTER SCIENCE

AN OVERVIEW OF THE DISTRIBUTED COMPUTER NETWORK. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
OCT 75 67P MILLS,DAVID L. ;
REPT. NO. TR-413
CONTRACT: N00014-67-A-0239-0032, NSF-GK-41602

UNCLASSIFIED REPORT

DESCRIPTORS: *DIGITAL COMPUTERS, *NETWORKS, MEMORY DEVICES, MINICOMPUTERS, COMPUTER ARCHITECTURE, MAGNETIC DISKS, INTERACTIVE GRAPHICS, COMPILERS, COMPUTER FILES, FORTRAN, PROGRAMMING LANGUAGES, COMPUTER PROGRAM DOCUMENTATION, RESOURCE MANAGEMENT, MULTIPROCESSORS (U)
IDENTIFIERS: *COMPUTER NETWORKS, *DISTRIBUTED NETWORKS, PDP 11 COMPUTERS, DISK STORAGE, UNIVAC 1100 SERIES COMPUTERS, COMPUTER SOFTWARE, VIRTUAL MEMORY (U)

THE DISTRIBUTED COMPUTER NETWORK (DCN) IS A RESOURCE-SHARING COMPUTER NETWORK WHICH INCLUDES A NUMBER OF DEC PDP11 COMPUTERS. THE DCN SUPPORTS A NUMBER OF PROCESSES IN A MULTIPROGRAMMED DISTRIBUTED ENVIRONMENT. PROCESSES CAN COMMUNICATE WITH EACH OTHER AND INTERFACE WITH THEIR ENVIRONMENT IN A MANNER WHICH IS INDEPENDENT OF THEIR RESIDENCE WITHIN A PARTICULAR COMPUTER. RESOURCES SUCH AS PROCESSORS, DEVICES AND STORAGE MEDIA CAN BE REMOTELY ACCESSED AND SHARED SO AS TO PROVIDE INCREASED RELIABILITY, FLEXIBILITY AND SYSTEM UTILIZATION. THE DCN NOW SUPPORTS SEVERAL PROGRAMMING LANGUAGES AND APPLICATIONS PACKAGES. COMMON PROGRAMMING LANGUAGES SUCH AS LISP, BASIC AND OTHERS, ALONG WITH AN EXTENSIVE LIBRARY OF INTERACTIVE GRAPHICS PROCEDURES, CAN BE EXECUTED IN PROCESSES WHICH TAKE FULL ADVANTAGE OF THE DISTRIBUTED ARCHITECTURE OF THE SYSTEM. MOST OF THE COMPONENTS OF THE DISK OPERATING SYSTEM (DOS) FOR THE PDP11 CAN BE EXECUTED IN A SPECIAL EMULATOR-TYPE VIRTUAL PROCESS NOW BEING CONSTRUCTED FOR THIS PURPOSE. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A018 735 14/5 17/8 9/2
RCA LABS PRINCETON N J

SIGNAL/NOISE RATIO OF HOLOGRAPHIC IMAGES. (U)

DESCRIPTIVE NOTE: FINAL REPT. 24 JUN-23 SEP 75,
OCT 75 33P BURKE,W. J. ;
REPT. NO. PRRL-75-CR-66
CONTRACT: N00019-75-M-0494

UNCLASSIFIED REPORT

DESCRIPTORS: *HOLOGRAPHY, *DATA STORAGE SYSTEMS, *IMAGES, *HOLOGRAMS, *SIGNAL TO NOISE RATIO, IRON, DOPING, CROSSTALK, SCANNING, PHOTOMULTIPLIER TUBES, SPECTRUM ANALYZERS, MEASUREMENT, GRAPHICS (U)
IDENTIFIERS: IMAGE SLICERS (U)

THIS REPORT DESCRIBES THE RESULTS OF THE CURRENTLY OBTAINABLE SIGNAL/NOISE (S/N) RATIO OF IMAGES READOUT FROM THICK PHASE HOLOGRAMS STORED IN IRON-DOPED LINBO3. USING MULTIPLE OBJECT BEAM ILLUMINATION AN S/N RATIO OF APPROXIMATELY 27 DB WAS MEASURED FOR A WHITE FIELD. NO SIGNIFICANT DECREASE IN THE MEASURED S/N RATIO WAS OBSERVED WITH THE INCREASING NUMBER OF HOLOGRAMS STORED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A019 050 9/2
COMPUTER SCIENCES CORP PHOENIX ARIZ

RADCOLS COMPUTER SIMULATION MODEL OVERALL SYSTEMS SPECIFICATION. VOLUME I. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 74-JUN 75, SEP 75 338P BRAUN,VTHOR ;
CONTRACT: F30602-74-C-0281
MONITOR: RADC TR-75-230-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A019 051.

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *COMPUTER PROGRAMMING, *INFORMATION SYSTEMS, SYSTEMS ANALYSIS, TIME SHARING, COMPILERS, DATA BASES, COMPUTERIZED SIMULATION, MATHEMATICAL MODELS, MATHEMATICAL LOGIC, QUEUEING THEORY, INTERFACES, SPECIFICATIONS (U)
IDENTIFIERS: SIMSCRIPT 2.5 PROGRAMMING LANGUAGE, HONEYWELL 600/6000 COMPUTERS, *COMPUTER SYSTEMS HARDWARE, OPERATING SYSTEMS(COMPUTERS), *COMPUTER PERFORMANCE EVALUATION, RADCOLS MODEL (U)

THE RADCOLS (ROME AIR DEVELOPMENT CENTER ON LINE SIMULATOR) MODEL IS A SYSTEM WHICH SIMULATES A HONEYWELL INFORMATION SYSTEM 600 OR 6000 COMPUTER COMPLETE WITH ITS GCOS (GENERAL COMPREHENSIVE OPERATING SYSTEM) OPERATING SYSTEM. THE MODEL EXECUTES ON A HIS 600/6000 SYSTEM UNDER GCOS AND IS WRITTEN IN SIMSCRIPT 2.5. THE PRIMARY PURPOSE OF THE RADCOLS MODEL IS TO PROVIDE AN EXPERIMENTER WITH A TOOL BY WHICH HE MAY REASONABLY PREDICT THE EFFECT OF PROPOSED HARDWARE, SOFTWARE AND WORK LOAD CHANGES. REPRESENTATION OF THE GCOS MULTI-DIMENSIONAL PHILOSOPHY HAS BEEN THE PRIMARY DESIGN GOAL OF RADCOLS. THE EXPERIMENTER IS PERMITTED TO INTRODUCE INPUT TO THE MODEL WHICH PORTRAYS A SPECIFIED WORK LOAD ON THE SYSTEM. JOB GENERATION IS ACCOMPLISHED WITHIN THE MODEL VIA DISTRIBUTION FACTORS SUBMITTED AS INPUTS UNDER EACH (LOCAL BATCH, REMOTE BATCH, AND TSS) WORK LOAD CATEGORY. THE MODEL HAS BEEN DESIGNED TO GENERATE FOUR SPECIFIC REPORT TYPES: FACILITY UTILIZATION, PROCESS DELAY, QUEU BELIOVIOR, AND TASK TURNAROUND. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 051 9/2
COMPUTER SCIENCES CORP PHOENIX ARIZ

RADCOLS COMPUTER SIMULATION MODEL OVERALL SYSTEMS SPECIFICATION. VOLUME II. FLOW CHARTS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 74-JUN 75,
SEP 75 302P BRAUN,VTHOR ;
CONTRACT: F30602-74-C-0281
MONITOR: RADC TR-75-230-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *COMPUTER PROGRAMMING, *INFORMATION SYSTEMS, FLOW CHARTING, SYSTEMS ANALYSIS, TIME SHARING, COMPILERS, DATA BASES, COMPUTERIZED SIMULATION, MATHEMATICAL MODELS, MATHEMATICAL LOGIC, QUEUEING THEORY, INTERFACES (U)
IDENTIFIERS: SIMSCRIPT 2.5 PROGRAMMING LANGUAGE, HONEYWELL 600/6000 COMPUTERS, *COMPUTER SYSTEMS HARDWARE, OPERATING SYSTEMS(COMPUTERS), *COMPUTER PERFORMANCE EVALUATION, RADCOLS MODEL (U)

THE RADCOLS (ROME AIR DEVELOPMENT CENTER ON LINE SIMULATOR) MODEL IS A SYSTEM WHICH SIMULATES A HONEYWELL INFORMATION SYSTEM 600 OR 6000 COMPUTER COMPLETE WITH ITS GCOS OPERATING SYSTEM. THE MODEL EXECUTES ON A HIS 600/6000 SYSTEM UNDER GCOS AND IS WRITTEN IN SIMSCRIPT 2. 5. THE PRIMARY PURPOSE OF THE RADCOLS MODEL IS TO PROVIDE AN EXPERIMENTER WITH A TOOL BY WHICH HE MAY REASONABLY PREDICT THE EFFECT OF PROPOSED HARDWARE, SOFTWARE AND WORK LOAD CHANGES. REPRESENTATION OF THE GCOS MULTI-DIMENSIONAL PHILOSOPHY HAS BEEN THE PRIMARY DESIGN GOAL OF RADCOLS. THE EXPERIMENTER IS PERMITTED TO INTRODUCE INPUT TO THE MODEL WHICH PORTRAYS A SPECIFIED WORK LOAD ON THE SYSTEM. JOB GENERATION IS ACCOMPLISHED WITHIN THE MODEL VIA DISTRIBUTION FACTORS SUBMITTED AS INPUTS UNDER EACH (LOCAL BATCH, REMOTE BATCH, AND TSS) WORK LOAD CATEGORY. THE MODEL HAS BEEN DESIGNED TO GENERATE FOUR SPECIFIC REPORT TYPESL FACILITY UTILIZATION, PROCESS DELAY, QUEU BELIOVIOR, AND TASK TURNAROUND. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 052 9/2
COMPUTER SCIENCES CORP PHOENIX ARIZ

RADCOLS COMPUTER SIMULATION MODEL OVERALL SYSTEMS SPECIFICATION. VOLUME III. USERS MANUAL. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. JUN 74-JUN 75, SEP 75 106P BRAUN,VTHOR ;
CONTRACT: F30602-74-C-0261
MONITOR: RADC TR-75-230-VOL-3

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A019 051.

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *COMPUTER PROGRAMMING, *INFORMATION SYSTEMS, INSTRUCTION MANUALS, SYSTEMS ANALYSIS, TIME SHARING, COMPILERS, DATA BASES, COMPUTERIZED SIMULATION, MATHEMATICAL MODELS, MATHEMATICAL LOGIC, QUEUEING THEORY, INTERFACES (U)
IDENTIFIERS: SIMSCRIPT 2.5 PROGRAMMING LANGUAGE, HONEYWELL 600/6000 COMPUTERS, *COMPUTER SYSTEMS HARDWARE, OPERATING SYSTEMS(COMPUTERS), *COMPUTER PERFORMANCE EVALUATION, RADCOLS MODEL (U)

THE OBJECTIVE OF THIS USERS MANUAL FOR THE RADCOLS COMPUTER SIMULATION MODEL IS TO PROVIDE THE USER PERSONNEL WITH THE INFORMATION NECESSARY TO EFFECTIVELY USE THE MODEL. THIS MANUAL IS APPLICABLE TO THREE CLASSES OF USERS: EXPERIMENTERS, MODEL DEVELOPERS, AND MODEL MAINTAINERS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A019 059 9/2 20/1
CALIFORNIA UNIV BERKELEY DEPT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCES

EXTRACTION OF DERIVATIVES FROM DATA STORED IN AN ACOUSTIC MEMORY, (U)

FEB 75 5P HSU,TZU-HWA ;WHITE,RICHARD M. ;

CONTRACT: DAHC04-74-G-0205
MONITOR: ARO 5718.14-EL

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN IEEE TRANSACTIONS ON SONICS AND ULTRASONICS, VSU-22 N5 P355-358 SEP 75.

DESCRIPTORS: *DATA STORAGE SYSTEMS, *ACOUSTIC WAVES, *SURFACE WAVES, PIEZOELECTRIC CRYSTALS, EXTRACTION, WAVEFORMS, PROPAGATION, REPRINTS (U)
IDENTIFIERS: *SURFACE ACOUSTIC WAVES, *ACOUSTIC MEMORIES (U)

SIMPLE MEANS ARE PROPOSED AND ANALYZED FOR THE EXTRACTION OF OUTPUTS PROPORTIONAL TO THE DERIVATIVES OF DATA SAMPLES STORED IN THE FORM OF SURFACE ACOUSTIC WAVES PROPAGATING ON A PIEZOELECTRIC CRYSTAL. EXTRACTION OF THE DERIVATIVES IS DONE BY SIMPLY-SHAPED ELECTRODE TRANSDUCERS. A SIMPLE PRINCIPLE IS PRESENTED TO PREDICT THE DERIVATIVE OUTPUTS FOR VARIOUS SURFACE ACOUSTIC WAVEFORMS. COMPUTER ANALYSIS OF THE DEVICES YIELDS TIME RESPONSES REVEALING THE DIFFERENCES BETWEEN ADJACENT DATA ELEMENTS WITH RESOLUTIONS AS HIGH AS 30 DB. COMPARISON WITH EXPERIMENTAL RESULTS IS ALSO MADE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 202 9/2 12/1
MICHIGAN UNIV ANN ARBOR SYSTEMS ENGINEERING LAB

A STUDY OF INFORMATION IN MULTIPLE-COMPUTER AND MULTIPLE-CONSOLE DATA PROCESSING SYSTEMS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 JUL 72-30 SEP 75.
NOV 75 44P IRANI,K. B. ;BAUER,M. F. ;MULLA,J. ;MITOMA,M. F. ;SONNENBURG,C. R. ;
CONTRACT: F30602-73-C-0001
PROJ: AF-5581
TASK: 558102
MONITOR: RADC TR-75-276

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA PROCESSING, *MATHEMATICAL MODELS, INFORMATION PROCESSING, PARALLEL PROCESSORS, DATA BASES, COMPUTER PROGRAM DOCUMENTATION, ON LINE SYSTEMS, PROGRAMMING LANGUAGES, TIME SHARING, MEMORY DEVICES, ASSOCIATIVE PROCESSING (U)
IDENTIFIERS: COMPUTER HARDWARE, COMPUTER SOFTWARE (U)

THIS FINAL REPORT SUMMARIZES THE ACHIEVEMENTS FROM 1 JUL 72 TO 30 SEP 75 OF CONTINUING RESEARCH FOR THE DEVELOPMENT AND APPLICATION OF MATHEMATICAL TECHNIQUES FOR THE ANALYSIS AND OPTIMIZATION OF COMPUTER SYSTEMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 334 9/2
UNIVERSITY OF SOUTHERN CALIFORNIA MARINA DEL REY
INFORMATION SCIENCES INST

A KNOWLEDGEABLE, LANGUAGE-INDEPENDENT SYSTEM FOR PROGRAM CONSTRUCTION AND MODIFICATION. (U)

DESCRIPTIVE NOTE: RESEARCH REPT.,
OCT 75 68P YONKE,MARTIN D. I
REPT. NO. ISI/RR-75-42
CONTRACT: DAHC15-72-C-0308, ARPA ORDER-2223

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMMING, *PROGRAMMING LANGUAGES, SYSTEMS ANALYSIS, SYNTAX, SEMANTICS, ALGORITHMS (U)
IDENTIFIERS: *COMPUTER PROGRAM RELIABILITY, LOGIC DESIGN, STRUCTURED PROGRAMMING, PARSING (U)

THE NEED OF A LANGUAGE-INDEPENDENT PROGRAMMING ENVIRONMENT WITH KNOWLEDGEABLE FACILITIES IS EXPLICATED. THEN THE DESIGN OF A LANGUAGE-INDEPENDENT SYSTEM FOR 'INTELLIGENT' CREATION AND MODIFICATION OF PROGRAMS AS AN EXAMPLE OF SUCH A FACILITY. THIS SYSTEM, CALLED THE PROGRAM CONSTRUCTOR AND MODIFIER, IS A TWO-STAGE PROCESS. IN THE FIRST STAGE, AN 'EXPERT' CREATES A DESCRIPTION OF A PROGRAMMING LANGUAGE IN A HIGH-LEVEL FORMALISM. THIS DESCRIPTION IS USED IN CONJUNCTION WITH THE UNDERLYING MODEL OF PROGRAMMING LANGUAGES TO DRIVE THE SECOND STAGE, IN WHICH THE GENERAL USER CREATES AND MODIFIES PROGRAMS WRITTEN IN THE PARTICULAR PROGRAMMING LANGUAGE. THIS MODEL WILL GUARANTEE THAT THROUGHOUT THE INTERACTION THE PROGRAM IS SYNTACTICALLY ERROR-FREE AND -- AS FAR AS POSSIBLE WITHOUT EXECUTING THE PROGRAM -- WILL GUARANTEE CERTAIN SEMANTIC CONSISTENCIES. ALL METHODS ASSOCIATED WITH THIS MODEL ARE ORIENTED TOWARDS ERROR PREVENTION WHILE STILL ALLOWING THE USER 'FREE-FORM' PROGRAM INPUT. THESE METHODS WILL ALSO AUTOMATICALLY CORRECT CERTAIN CLASSES OF ERRORS SUCH AS MISSPELLED WORDS AND OMITTED TERMINAL SYMBOLS OF CERTAIN TYPES AND WILL INTERACT WITH THE USER TO GAIN INFORMATION WHEN THERE IS INSUFFICIENT KNOWLEDGE FOR AUTOMATIC CORRECTION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A019 661 9/2
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER SCIENCE

SEMANTIC MODELS FOR PARALLEL SYSTEMS. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
JAN 75 34P COHEN,ELLIS S. ;
CONTRACT: F44620-73-C-0074, ARPA ORDER-2466
MONITOR: AFOSR TR-75-1675

UNCLASSIFIED REPORT

DESCRIPTORS: *PARALLEL PROCESSING, *PARALLEL PROCESSORS, *PROGRAMMING LANGUAGES, SEMANTICS, COMPUTER PROGRAMMING, MODELS, SCHEDULING, PROTECTION (U)

THIS PAPER PRESENTS A SEMANTIC MODEL FOR PARALLEL SYSTEMS WITH A SCHEDULING MECHANISM THAT IS USEFUL FOR EXPRESSING AND PROVING A WIDER RANGE OF PROPERTIES THAN SEMANTIC MODELS WHICH DO NOT CONSIDER SCHEDULING. WE FORMALLY DESCRIBE A NUMBER OF PROPERTIES RELATED TO SCHEDULING AND DEADLOCK, INCLUDING 'FAIRNESS' AND 'FULLNESS', AND SHOW THAT SCHEDULERS WITH THESE PROPERTIES BEHAVE IN DESIREABLE WAYS. LASTLY, WE PROVE AND CONJECTURE SOME PROOF RULES FOR SCHEDULED SYSTEMS AND OUTLINE BRIEFLY THE RELATION OF THIS WORK TO MODELLING PROTECTION IN PARALLEL SYSTEMS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A019 897 8/11 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER SUPPORT OF SEISMIC DATA ACTIVITY. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 MAY-31 JUL 75.
JUL 75 19P
CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 30 MAY 75, AD-A010 556.

DESCRIPTORS: *SEISMIC DATA, *DATA PROCESSING, *DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL, COMPUTER PROGRAMMING, COMMUNICATIONS NETWORKS, INTERFACES (U)
IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER NETWORKS, SEISMIC INPUT PROCESSORS (U)

THE PURPOSE OF THIS PROJECT IS TO SUPPORT THE ARPA-NMRO SEISMIC DATA ACTIVITY BY PROVIDING DATA STORAGE AND RETRIEVAL SERVICES. THE ARPANET WILL BE USED AS THE PRIMARY COMMUNICATIONS CHANNEL. AS PART OF THE SERVICE, SEISMIC DATA WILL BE (A) RECEIVED FROM THE ARPANET; (B) STORED AND INDEXED IN THE DATACOMPUTER; AND (C) MADE AVAILABLE TO COMPUTERS ON THE ARPANET IN A CONVENIENT AND TIMELY MANNER. THESE SERVICES REPRESENT A SPECIAL APPLICATION OF THE ARPANET DATACOMPUTER BEING DEVELOPED AND MAINTAINED BY COMPUTER CORPORATION OF AMERICA (CCA) UNDER CONTRACT. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A019 961 8/11 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER SUPPORT OF SEISMIC DATA ACTIVITY. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 AUG-31 OCT 75.
OCT 75 19P
CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 31 JUL 75, AD-A019 897.

DESCRIPTORS: *SEISMIC DATA, *DATA PROCESSING, *DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL, COMPUTER PROGRAMMING, COMMUNICATIONS NETWORKS, INTERFACES (U)
IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER NETWORKS, SEISMIC INPUT PROCESSORS (U)

THE PURPOSE OF THIS PROJECT IS TO SUPPORT THE ARPA-NMRO SEISMIC DATA ACTIVITY BY PROVIDING DATA STORAGE AND RETRIEVAL SERVICES. THE ARPANET WILL BE USED AS THE PRIMARY COMMUNICATIONS CHANNEL. AS PART OF THE SERVICE, SEISMIC DATA WILL BE (A) RECEIVED FROM THE ARPANET; (B) STORED AND INDEXED IN THE DATACOMPUTER; AND (C) MADE AVAILABLE TO COMPUTERS ON THE ARPANET IN A CONVENIENT AND TIMELY MANNER. THE AMOUNT OF SEISMIC DATA TO BE STORED REQUIRES THE ADDITION OF A MASS MEMORY TO THE DATACOMPUTER SYSTEM. AN AMPEX TERABIT MEMORY SYSTEM (TBM) WITH A CAPACITY OF ALMOST TWO HUNDRED BILLION BITS WILL BE INSTALLED AT CCA IN JANUARY 1976 TO ANSWER THIS NEED. THE OTHER HARDWARE ITEM VITAL TO THIS PROJECT, BESIDES THE TBM, IS A SMALL SEISMIC INPUT PROCESSOR (SIP). (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 051 9/2
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER SCIENCE

PROGRAMMING THE ILLIAC IV, (U)

NOV 75 42P STEVENSON,DAVID K. ;
CONTRACT: N00014-67-A-0314-0010, NSF-GJ-32111
PROJ: NR-044-422

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMMING, *COMPUTER ARCHITECTURE, *PARALLEL PROCESSING, *PARALLEL PROCESSORS, MULTIPROCESSORS, DATA BASES, MACHINE CODING, BUFFER STORAGE, ARITHMETIC UNITS, INPUT OUTPUT PROCESSING, HIGH LEVEL LANGUAGES, ALGORITHMS, LINEAR SYSTEMS (U)
IDENTIFIERS: ILLIAC 4 COMPUTER, DISC STORAGE (U)

A SIMPLE MODEL OF PARALLEL COMPUTATION IS A SINGLE INSTRUCTION STREAM CONTROLLING A MULTIPLE PROCESSOR CONFIGURATION. PROGRAMS FOR SUCH COMPUTERS ENTAIL A HOST OF CONSIDERATIONS ABSENT FROM PROGRAMS FOR A CONVENTIONAL SEQUENTIAL COMPUTER. THIS PAPER EXPLORES THE MAIN CONSIDERATIONS IN USING SUCH A COMPUTER, LARGELY IN TERMS OF THE ILLIAC 4. IT DEALS WITH GROSS SYSTEM CHARACTERISTICS AND HOW THEY AFFECT THE SUITABILITY OF VARIOUS PROBLEM FORMULATIONS, PARALLEL PROGRAMS STRUCTURES AND DATA REPRESENTATIONS, AND CODING STRATEGIES AND TECHNIQUES. THE PAPER IS SELF-CONTAINED IN THAT IT DOES NOT REQUIRE ANY PREVIOUS KNOWLEDGE OF THE ILLIAC; IT SHOULD BE OF INTEREST BOTH TO THE GENERAL COMPUTING COMMUNITY AS A SURVEY OF PRACTICAL ASPECTS OF PARALLEL COMPUTATION AND TO THOSE ACTUALLY CONTEMPLATING USING THE ILLIAC. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 073 5/2 5/1 5/9
PRC INFORMATION SCIENCES CO MCLEAN VA

AIR FORCE MILITARY PERSONNEL CENTER
MICROFORM SYSTEM. EXECUTIVE SUMMARY. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 JAN-15 MAY 75.
NOV 75 35P GARNER,J. K. ;GILBERT,B. H. ;PERRY,D. R. ;CATHCART,J. T. ;
CONTRACT: F30602-71-C-0157
MONITOR: RADC TR-75-248-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A020 074.

DESCRIPTORS: *AIR FORCE PERSONNEL, *RECORDS, *DATA STORAGE SYSTEMS, MICROFORM, INFORMATION RETRIEVAL, COMPUTERS, PERSONNEL MANAGEMENT (U)

THIS DOCUMENT IS THE FIRST VOLUME OF A TWO-VOLUME FINAL REPORT ON THE DESIGN, DEVELOPMENT, IMPLEMENTATION AND TEST AND EVALUATION OF THE AFMPC MICROFORM SYSTEM. THIS VOLUME PRESENTS A SUMMARY OF THE DETAIL AND SUPPORTING DATA OF THAT PRESENTED IN VOLUME II. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 074 5/2 5/1 5/9
PRC INFORMATION SCIENCES CO MCLEAN VA

AIR FORCE MILITARY PERSONNEL CENTER MICROFORM SYSTEM. SYSTEM DESCRIPTION. TEST AND EVALUATION RESULTS. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 1 JAN 71-15 MAY 75,
NOV 75 224P GARNER,J. K. ;GILBERT,B. H. ;PERRY,D. R. ;CATHCART,J. T. ;
CONTRACT: F30602-71-C-0157
MONITOR: RADC TR-75-248-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 1. AD-A020 073.

DESCRIPTORS: *AIR FORCE PERSONNEL, *RECORDS, *DATA STORAGE SYSTEMS, MICROFORM, INFORMATION RETRIEVAL, COMPUTERS, MANAGEMENT, COST ANALYSIS (U)

THIS DOCUMENT IS THE SECOND VOLUME OF A TWO-VOLUME FINAL REPORT ON THE DESIGN, DEVELOPMENT, IMPLEMENTATION AND TEST AND EVALUATION OF THE AFMPC MICROFORM SYSTEM. THIS VOLUME PRESENTS DETAIL DESCRIPTION AND SUPPORTING DATA AND ANALYSIS OF THE MICROFORM SYSTEM. THE MICROFORM SYSTEM IS A DOCUMENT STORAGE AND RETRIEVAL SYSTEM IN WHICH PHOTOGRAPHICALLY REDUCED IMAGES OF THE AIR FORCE PERSONNEL RECORDS, WHICH MUST BE RETAINED UNDER TITLE 44 OF THE U.S. CODE, ARE MAINTAINED AND MANAGED. THE CONVERSION AND MAINTENANCE PROCESS AND THE RETRIEVAL AND DISSEMINATION PROCESS ARE COMPLETELY DESCRIBED. SYSTEM OPERATIONAL COST FOR CURRENT OPERATION LEVELS AS WELL AS MAXIMUM OPERATION COSTS ARE PRESENTED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 136 9/2
ILLINOIS UNIV AT URBANA-CHAMPAIGN COORDINATED SCIENCE LAB

DESIGN OF FAIL-SAFE ASYNCHRONOUS SEQUENTIAL MACHINES. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JAN 76 88P FAN,YU-DAR ;
REPT. NO. R-713, UILU-ENG-76-2201
CONTRACT: DAAB07-72-C-0259

UNCLASSIFIED REPORT

DESCRIPTORS: *CENTRAL PROCESSING UNITS, *COMPUTER PROGRAMMING, *FAIL SAFE, LOGIC CIRCUITS, GATES(CIRCUITS), COMPUTER PROGRAMS, ASYNCHRONOUS SYSTEMS, THESES (U)
IDENTIFIERS: FAULT TOLERANT COMPUTING, ASYNCHRONOUS SEQUENTIAL CIRCUITS, *SEQUENTIAL MACHINES, DESIGN (U)

FAIL-SAFE DESIGNS ARE COMMONLY CLASSIFIED AS 0-FAIL-SAFE OR 1-FAIL-SAFE DESIGNS, WHERE THE INDICATED BINARY SIGNAL IS CONSIDERED THE 'SAFE' VALUE AND IS PRODUCED IN CASE OF FAILURES, AND N-FAIL-SAFE DESIGNS, WHERE BOTH OF THE SIGNALS 0 AND 1 ARE CONSIDERED RELIABLE AND A DISTINCT THIRD SYMBOL, N, IS PRODUCED IN CASE OF FAILURES IN THE CIRCUIT. TWO METHODS FOR THE FAIL-SAFE DESIGN OF ASYNCHRONOUS SEQUENTIAL MACHINES ARE PRESENTED IN THIS PAPER: IN THE FIRST METHOD, ORDINARY BINARY LOGIC ELEMENTS ARE USED IN THE REALIZATION. SIGNALS ARE DUPLICATED TO GUARANTEE THE SAFE VALUE OF THE OUTPUT IN THE 0-FAIL-SAFE OR 1-FAIL-SAFE CASE, AND A NEW STATE ASSIGNMENT METHOD IS USED IN THE N-FAIL-SAFE CASE. IN THE SECOND METHOD, COMPLETE SETS OF 'FAIL-SAFE LOGIC ELEMENTS' ARE DESIGNED FIRST AND THEN ASSEMBLED INTO FAIL-SAFE REALIZATIONS. FOR THE N-FAIL-SAFE CASE, TWO APPROACHES ARE DISCUSSED: ONE USES THREE-VALUED LOGIC, THE OTHER USES A BINARY ENCODING. THE APPROPRIATE CHECKING CIRCUITS ARE ALSO DESIGNED SO THAT FAULTS ARE INDICATED BEFORE THE CAPABILITIES OF THE DESIGNS ARE EXCEEDED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 333 14/5
RANGE COMMANDERS COUNCIL WHITE SANDS MISSILE RANGE N MEX
DATA REDUCTION AND COMPUTING GROUP

MICROFICHE GUIDE. (U)

DESCRIPTIVE NOTE: FINAL REPT.
SEP 75 339P
REPT. NO. DR/CG-131-75

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SECTION 7 ATTACHMENTS AVAILABLE IN MICROFICHE ONLY FROM RANGE COMMANDERS COUNCIL ATTN: STEWS-SA-R. WHITE SANDS MISSILE RANGE, N. MEX. 88002.

DESCRIPTORS: *MICROFICHE, *DATA STORAGE SYSTEMS, *INFORMATION RETRIEVAL, *HANDBOOKS, UTILIZATION, MANAGEMENT INFORMATION SYSTEMS, EFFICIENCY, FILES(RECORDS), DATA REDUCTION, LOW COSTS, PHOTOGRAPHIC FILM, STANDARDS, STANDARDIZATION, ALPHANUMERIC DATA, DIGITAL COMPUTERS, MAGNETIC RECORDING SYSTEMS, INPUT OUTPUT PROCESSING, SPECIFICATIONS, DOCUMENTS (U)
IDENTIFIERS: *COMPUTER OUTPUT MICROFILM RECORDERS, COM(COMPUTER OUTPUT MICROFILM) (U)

MICROFICHE IS A NEW INFORMATION MEDIA AND ITS ADVANTAGES ARE EXTENDED BY USING NEW CONCEPTS FOR INFORMATION STORAGE AND RETRIEVAL. MICROFICHE IS AN EFFICIENT AND COST EFFECTIVE DEVICE FOR INFORMATION DISTRIBUTION. MICROFICHE IS CONVENIENT AND VERSATILE FOR THE USER AND IS CAPABLE OF CONSOLIDATING MANY TYPES OF DATA (SOURCE DOCUMENTS, COMPUTER OUTPUT, CHARTS AND MAPS, STRIP CHARTS, OSCILLOGRAPHS, PHOTOGRAPHS, PICTURES, DRAWINGS, SKETCHES, GRAPHS, ETC., IN BOTH BLACK AND WHITE OR COLOR) INTO A SINGLE, COMPACT, RANDOMLY ACCESSIBLE DATA FILE. THIS PUBLICATION PROVIDES GENERAL MICROFICHE INFORMATION AND GUIDELINES FOR THE DEVELOPMENT OF A MICROFICHE SYSTEM. METHODS AND PROCEDURES FOR GENERATING AND DUPLICATING MICROFICHE ARE PUBLISHED IN DETAIL ALONG WITH PROBLEMS THAT MAY BE ENCOUNTERED. FEATURES AND ADVANTAGES OF MICROFICHE FOR INFORMATION RECORDING, DISTRIBUTION, AND RETRIEVAL ARE DESCRIBED. SPECIFICATIONS FOR STANDARD MICROFICHE FORMATS ARE DESCRIBED IN DETAIL ALONG WITH REASONS FOR USING STANDARD FORMATS. DETAILS FOR IMPLEMENTING AND OPERATING A COMPLETE SYSTEM ARE PROVIDED. A COMPLETE SYSTEM INTEGRATES THE THREE BASIC TYPES OF MICROFICHE: (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A020 426 8/5 9/2
DEFENSE MAPPING AGENCY AEROSPACE CENTER ST LOUIS AIR FORCE STATION MO

HOLDINGS, STORAGE AND RETRIEVAL OF DOD GRAVITY LIBRARY DATA. (U)

SEP 75 42P DOTSON,LARRY L. ;REINHOLTZ, EDWARD B. ;
REPT. NO. DMAAC/RP-75-003

UNCLASSIFIED REPORT

DESCRIPTORS: *GRAVITY, *DATA STORAGE SYSTEMS, *INFORMATION RETRIEVAL, GEODESY, COMPUTER APPLICATIONS, MAGNETIC TAPE (U)
IDENTIFIERS: UNIVAC 1108 COMPUTERS, FILE MAINTENANCE (U)

THE DEPARTMENT OF DEFENSE (DOD) GRAVITY LIBRARY, MAINTAINED BY THE DEFENSE MAPPING AGENCY AEROSPACE CENTER, HAS GROWN FROM A SMALL CARD STORAGE FILE TO A MASSIVE DATA FILE CONTAINED ON MAGNETIC TAPES. IN THE GROWTH PROCESS, THE LIBRARY HAS PROGRESSED FROM THE USE OF A VARIOUS ASSORTMENT OF CARD PROCESSING EQUIPMENT TO THE USE OF A UNIVAC 1108 COMPUTER SYSTEM. THE TREMENDOUS INCREASE IN HOLDINGS AND REQUIREMENTS NECESSITATED THE ESTABLISHING OF STANDARD FORMATS FOR ALL GRAVITY AND RELATED DATA. THE RECEIPT OF DATA IN VARIOUS FORMS AND THE REDUCTION OF THIS DATA TO A COMMON FORM MADE IT NECESSARY TO DEVELOP IMPROVED PROCESSING TECHNIQUES FOR INPUTING NEW DATA. VOLUMINOUS RETRIEVAL AND MAINTENANCE OF AUTOMATED DATA REQUIRED IMPROVED TECHNIQUES WHEN ADDRESSING INQUIRIES TO SUCH LARGE FILES. THIS REPORT IS INTENDED TO EXPLAIN THE HOLDINGS, SYSTEM OF STORAGE, MAINTENANCE OF FILES AND RETRIEVAL OF DATA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 480 17/2 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

INTERFACE MESSAGE PROCESSORS FOR THE ARPA COMPUTER NETWORK. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. NO. 4, 1 OCT-31 DEC 75.
JAN 76 30P HEART,FRANK ;
REPT. NO. BBN-3236
CONTRACT: F08606-75-C-0032, ARPA ORDER-2351

UNCLASSIFIED REPORT

DESCRIPTORS: *MESSAGE PROCESSING, *SATELLITE COMMUNICATIONS, DIGITAL COMPUTERS, INPUT OUTPUT DEVICES, NETWORKS, INTERFACES, MAINTENANCE, BUFFER STORAGE, COMPUTER PROGRAMS, ADDRESSING (U)
IDENTIFIERS: STORE AND FORWARD COMMUNICATIONS (U)

THE ARPA COMPUTER NETWORK IS A PACKET-SWITCHING STORE-AND-FORWARD COMMUNICATIONS SYSTEM DESIGNED FOR USE BY COMPUTERS AND COMPUTER TERMINALS. THIS QUARTERLY TECHNICAL REPORT BRIEFLY DESCRIBES VARIOUS ASPECTS OF NETWORK OPERATION AND MAINTENANCE, INCLUDING IMP SOFTWARE MODIFICATIONS TO PERMIT MORE THAN 63 IMPS ON THE NET AND MORE THAN 4 HOST COMPUTERS ON AN IMP, AND SHIPMENT OF THE FIRST PRIVATE LINE INTERFACE TO THE FIELD; AND DISCUSSES IN SOME DETAIL THE NEW TIP SOFTWARE TO BE RELEASED SHORTLY, THE PACKET SATELLITE DEMONSTRATION AND SATELLITE IMP ACTIVITIES, AND RECENT DEVELOPMENT IN PLURIBUS TECHNOLOGY, PLUS A SUMMARY OF ACCOMPLISHMENTS TO DATE IN THE LATTER AREA. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 515 9/2 12/1
GEORGIA UNIV ATHENS DEPT OF STATISTICS AND COMPUTER SCIENCE

AN INTERACTIVE WORKSHEET SYSTEM FOR STATISTICAL USAGE. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
AUG 75 298P BINGHAM,STEPHEN F. ;
BARGMANN,ROLF E. ;
REPT. NO. TR-106, THEMIS-UGA-31
CONTRACT: N00014-69-A-0423
PROJ: NR-042-261

UNCLASSIFIED REPORT

DESCRIPTORS: *INTERACTIVE GRAPHICS, *COMPUTER GRAPHICS, *STATISTICS, COMPUTER PROGRAMMING, DATA PROCESSING TERMINALS, MULTIVARIATE ANALYSIS, SUBROUTINES, COMPUTER PROGRAMS, DIGITAL COMPUTERS (U)
IDENTIFIERS: CONVERSATIONAL COMPUTATION, OMNITAB COMPUTER PROGRAM, WORKSHEETS, IBM 360 COMPUTERS, IBM 370 COMPUTERS (U)

THIS REPORT DISCUSSES THE IMPLEMENTATION OF AN INTERACTIVE VERSION OF THE NATIONAL BUREAU OF STANDARD'S OMNITAB SYSTEM. THIS VERSION HAS BEEN ADOPTED TO WORK UNDER A GRAPHICS MONITOR SYSTEM ON AN IBM 2250 TERMINAL, CONNECTED TO AN IBM 360 OR 370 CENTRAL PROCESSOR. SEVERAL ROUTINES HAVE BEEN ADDED OR ADAPTED WHICH MAKE THE SYSTEM ESPECIALLY USEFUL FOR STATISTICAL APPLICATIONS, AND AS AN INSTRUCTIONAL TOOL. THE IMMEDIATE AVAILABILITY OF DISPLAYS OF SECTIONS OF THE WORKSHEET, AFTER EACH INSTRUCTION IS THE CENTRAL FEATURE OF THIS ADAPTATION. SEVERAL EXAMPLES OF STATISTICAL APPLICATIONS ARE INCLUDED IN THIS REPORT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 650 9/2 17/2
WHARTON SCHOOL OF FINANCE AND COMMERCE PHILADELPHIA PA
DEPT OF DECISION SCIENCES (MANAGEMENT)

DYNAMIC MODEL FOR DISTRIBUTED DATA-
BASES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
APR 75 34P LEVIN,KATRIEL DAN ;MORGAN,
HOWARD LEE ;
REPT. NO. 75-04-01
CONTRACT: N00014-75-C-0462

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA BASES, *DATA STORAGE SYSTEMS,
*FILES(RECORDS), *DATA TRANSMISSION SYSTEMS,
SITE SELECTION, DIGITAL COMPUTERS, COMPUTER
PROGRAMS, ACCESS, OPTIMIZATION, COSTS (U)
IDENTIFIERS: *COMPUTER NETWORKS, *DISTRIBUTED DATA
BASES, DYNAMIC OPTIMIZATION (U)

A MULTI-PERIOD MODEL OF PROGRAMS AND DATA FILE ASSIGNMENT IN COMPUTER NETWORKS IS PRESENTED. IN REALITY, ACCESS REQUEST PATTERNS ARE SUBJECT TO CHANGE OVER TIME, THUS, AN OPTIMAL FILE ASSIGNMENT AT ONE PERIOD IS NO LONGER OPTIMAL IN THE NEXT PERIOD. AN OPTIMIZING PROCEDURE FOR THE ASSIGNMENT OF PROGRAMS AND DATA FILES OVER TIME IS SUGGESTED. THIS PROCEDURE, TAKES INTO ACCOUNT BOTH THE DEPENDENCIES BETWEEN PROGRAMS AND DATA FILE AND THE TRANSITION COSTS INCURRED BY FILE MOVEMENTS FROM ONE ASSIGNMENT AT A GIVEN PERIOD TO ANOTHER ASSIGNMENT AT THE NEXT PERIOD. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 746 9/2
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

SYSTEM/360 EMULATOR PERFORMANCE ESTIMATE.
(U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
NOV 75 14P WALLACH,WALTER A. , JR;
REPT. NO. TN-66
CONTRACT: AF-AFOSR-2865-75, AT(04-3)-326
PROJ: AF-9769
TASK: 976902
MONITOR: AFOSR TR-76-0018

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *COMPUTER ARCHITECTURE, MICROPROGRAMMING, PERFORMANCE, ESTIMATES, BUS CONDUCTORS, MAPPING, MEMORY DEVICES, TIME, ACCESS (U)
IDENTIFIERS: *EMULATORS(COMPUTERS), EMMY COMPUTER PROGRAM, IBM 360 COMPUTERS, TIMING, MICROINSTRUCTIONS (U)

THIS NOTE DESCRIBES THE PERFORMANCE AND INSTRUCTION TIMING OF THE SYSTEM/360 EMULATORS FOR EMMY. GENERAL EMULATOR STRUCTURE AND FLOW ARE INCLUDED IN A PREVIOUS REPORT. A DETAILED DESCRIPTION OF THE FINAL COMPLETE CLASS B EMULATOR WILL BE THE SUBJECT OF A LATER REPORT. THE STANFORD EMMY WILL EMULATE TYPICAL 360 INSTRUCTION STREAMS AT ABOUT 97KIPS. A PRODUCTION (MODEL 2 CONTROL STORE) EMMY WILL ACHIEVE 143KIPS ON THE SAME INSTRUCTION STREAM. A 360 MODEL 50 PROCESSES THIS STREAM AT ABOUT 141KIPS. MINOR MODIFICATIONS TO THE STANFORD MACHINE SHOULD ENABLE IT TO ACHIEVE 120KIPS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A020 926 9/2
NAVAL SURFACE WEAPONS CENTER WHITE OAK LAB SILVER SPRING MD

PROGRESS TOWARD THE CROSSTIE MEMORY III. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT. OCT 74-OCT 75, OCT 75 38P SCHWEE,L. J. ;IRONS,H. R. ;ANDERSON,W. E. ;SERY,R. S. ;VAN SANT, O. J. , JR;
REPT. NO. NSWC/WOL/TR-75-167
PROJ: MAT-03L-000/ZF61-512-001

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO AD-A002 980.

DESCRIPTORS: *BLOCK ORIENTED RANDOM ACCESS MEMORIES, *RANDOM ACCESS COMPUTER STORAGE, *THIN FILM STORAGE DEVICES, SHIFT REGISTERS, KERR MAGNETOOPTICAL EFFECT, MAGNETIC DOMAINS, DOMAIN WALLS, MICROELECTRONICS, SUBSTRATES (U)
IDENTIFIERS: MAGNETIC FILM MEMORIES, MAGNETIC BUBBLE DOMAINS, *CROSSTIE MEMORIES, MAGNETORESISTIVITY (U)

THIS IS THE THIRD ANNUAL TECHNICAL REPORT OF PROGRESS TOWARD THE CROSSTIE MEMORY AND EMPHASIZES THE WORK DONE DURING THE PAST YEAR. IN THE CROSSTIE MEMORY, INFORMATION IS STORED IN MAGNETIC DOMAIN WALLS RATHER THAN DOMAINS AND DOMAIN WALL MOTION IS NOT USED IN ITS OPERATION. THE BASIC BUILDING BLOCK OF THE CROSSTIE MEMORY IS A MAGNETIC SHIFT REGISTER WHICH DEPENDS ON BLOCH LINE MOTION RATHER THAN DOMAIN WALL MOTION. THE CROSSTIE MEMORY IS INTENDED FOR USE AS A BLOCK ORIENTED RANDOM ACCESS MEMORY (BORAM) OR FAST AUXILIARY MEMORY (FAM). THE ADVANTAGES OF THE CROSSTIE MEMORY ARE SPEED, LOW POWER, HIGH BIT DENSITY, NONVOLATILITY, A WIDE TEMPERATURE RANGE OF OPERATION, LOW COST, AND USE OF AVAILABLE TECHNOLOGY. THERE WERE TWO MAJOR ACCOMPLISHMENTS THIS PAST YEAR. ONE IS THE MAGNETORESISTANCE DETECTOR, THE SECOND IS THE SERRATED TRACK WHICH SIMPLIFIES PROPAGATION, DETECTION, AND FABRICATION. PRESENT PROBLEM AREAS AND APPROACHES TO THEIR SOLUTION ARE DISCUSSED. PLANS AND DESIGN GOALS ARE ALSO PRESENTED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 148 9/2
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

FUNCTIONAL DESCRIPTION OF THE EMMY MAIN MEMORY SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
AUG 75 16P NEUHAUSER,CHARLES ;
REPT. NO. TN-57
CONTRACT: AF-AFOSR-2865-75, AT(04-3)-326
PROJ: AF-9769
TASK: 976902
MONITOR: AFOSR TR-76-0016

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, CENTRAL PROCESSING UNITS, BYTE FUNCTIONAL MODULES, FUNCTIONS, BUS CONDUCTORS, COMPUTER PROGRAMS, ERRORS, INTERFACES, ACCESS, PROGRAMMERS (U)
IDENTIFIERS: *EMULATORS(COMPUTERS), EMMY COMPUTER PROGRAM (U)

THIS DOCUMENT GIVES THE FUNCTIONAL DESCRIPTION OF AN EMULATION ORIENTED MAIN MEMORY SYSTEM FOR USE ON THE EMMY BUS SYSTEM. THE MAIN MEMORY SYSTEM CONSISTS OF A BYTE ADDRESSABLE CORE MEMORY SYSTEM AND A MEMORY CONTROLLER WHICH PERFORMS ELEMENTARY TRANSFORMATIONS ON ADDRESS AND DATA UNDER CPU CONTROL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 232 9/2 15/3
ROME AIR DEVELOPMENT CENTER GRIFFISS AFB N Y

AN ASSOCIATIVE PROCESSOR APPLICATION STUDY. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
JAN 76 44P SUMMERS,MICHAEL W. ;
REPT. NO. RADC-TR-75-318
PROJ: AF-5550
TASK: 555001

UNCLASSIFIED REPORT

DESCRIPTORS: *PARALLEL PROCESSORS, *ASSOCIATIVE PROCESSING, *AIRBORNE WARNING AND CONTROL SYSTEM, COMPUTER PROGRAMMING, REAL TIME, MEMORY DEVICES, KALMAN FILTERING (U)

THIS REPORT PRESENTS THE INITIAL RESULTS OF AN IN-HOUSE, PARALLEL PROCESSOR APPLICATION STUDY. THE STUDY WAS UNDERTAKEN TO EVALUATE THE ABILITY OF A PARALLEL COMPUTER ARCHITECTURE TO PERFORM THE DATA PROCESSING FUNCTIONS OF THE AIRBORNE WARNING AND CONTROL SYSTEM (AWACS). THE RESULTS OF THE ACTIVE TRACKING PORTION OF THE STUDY ARE PRESENTED AFTER A BRIEF DESCRIPTION OF THE TEST PROBLEM AND THE EVALUATION PROCEDURES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 255 14/5 5/2
NATIONAL BUREAU OF STANDARDS WASHINGTON D C COMPUTER SYSTEMS ENGINEERING DIV

EVALUATION OF TRANSPARENT ELECTRO-PHOTOGRAPHIC FILM AND CAMERA SYSTEM. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
JAN 76 11P BAGG,THOMAS C. ;
REPT. NO. NBSIR-76-991

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SPONSORED IN PART BY NAVAL SUPPLY SYSTEMS COMMAND, WASHINGTON, D.C.

DESCRIPTORS: *PHOTOGRAPHIC FILM, *DATA STORAGE SYSTEMS, *MICROFORM, ASSESSMENT, ELECTROPHOTOGRAPHY (U)
IDENTIFIERS: AB DICK/SCOTT SYSTEM 200, ELECTROPHOTOGRAPHIC MATERIALS, ADD ON MICROFILM (U)

ON BEHALF OF THE NAVAL SUPPLY SYSTEMS COMMAND, THE NATIONAL BUREAU OF STANDARDS WAS REQUESTED TO ASSIST IN THE EVALUATION OF NEW MICROFILM TECHNIQUES AND MATERIALS WHICH PERMIT THE ADDING-ON OF IMAGES AT VARIOUS TIMES. THIS IS AN INTERIM REPORT ON THE INITIAL EVALUATION OF THE AB DICK/SCOTT SYSTEM 200 WHICH USES TRANSPARENT ELECTROPHOTOGRAPHIC MATERIALS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A021 274 9/2
SCIENCE APPLICATIONS INC ARLINGTON VA

REPORT OF THE ARPA STUDY GROUP ON ADVANCED MEMORY CONCEPTS. (U)

DESCRIPTIVE NOTE: FINAL REPT. 1 OCT 74-30 APR 75, FEB 76 59P BERLEKAMP,E. R. ;GARWIN,R. L. ;KNUTH,D. E. ;LEDERBERG,J. ;LEIBLER,R. A. ;
REPT. NO. SAI-75-631-WA
CONTRACT: F30602-75-C-0098, ARPA ORDER-2886
MONITOR: RADC TR-76-28

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, SYSTEMS ENGINEERING, STATE OF THE ART (U)
IDENTIFIERS: *COMPUTER STORAGE DEVICES (U)

FOLLOWING A BRIEF OVERVIEW OF SHORT-TERM INDUSTRIAL TRENDS, THIS REPORT HIGHLIGHTS FOUR IMPORTANT RESEARCH AREAS WHICH SHOULD BE PROMINENTLY INCLUDED IN THE ARPA PROGRAM IN ADVANCED MEMORY CONCEPTS. LISTED IN THE ORDER OF THE IMMEDIACY OF THEIR APPLICABILITY, THESE ARE: (1) INNOVATIVE TECHNOLOGY, (2) ARCHITECTURE, SOFTWARE AND THEORY, (3) MATERIALS SCIENCES, INCLUDING SOLID STATE PROPERTIES OF ORGANICS, AND (4) NEUROSCIENCES. THE FINAL SECTION OF THIS REPORT CONTAINS RECOMMENDATIONS ON HOW THE ADVANCED MEMORY CONCEPTS PROGRAM SHOULD BE MANAGED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A021 421 9/2
SPERRY RAND CORP GREAT NECK N Y SPERRY GYROSCOPE

DESIGN AND FABRICATION OF RADIATION-HARDENED MNOS MEMORY ARRAY. (U)

DESCRIPTIVE NOTE: FINAL REPT. 25 JAN 73-30 JUN 74, JUL 75 205P MARRAFFINO,PAUL ;ROGERS,JOHN M. ;ROGICH,STEVEN G. ;WEGENER,H. A. R. ;
REPT. NO. SGD-4282-0791
CONTRACT: F29601-73-C-0059
PROJ: DNA-NWED-QAXT
TASK: D043
MONITOR: AFWL TR-74-209

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, *RANDOM ACCESS COMPUTER STORAGE, SEMICONDUCTOR DEVICES, RADIATION HARDENING, METAL NITRIDE OXIDE SEMICONDUCTORS, TRANSISTORS, INTEGRATED CIRCUITS, AIRBORNE, ENVIRONMENTAL TESTS (U)
IDENTIFIERS: SEMICONDUCTOR COMPUTER STORAGE, COMPUTER STORAGE DEVICES, *SEMICONDUCTOR STORAGE DEVICES (U)

THE REPORT DESCRIBES WORK PERFORMED TO DEVELOP A RADIATION-HARDENED MNOS MEMORY ARRAY FOR USE IN A RAM MEMORY OF AN AIRBORNE COMPUTER. A STUDY OF MNOS DEVICE OPERATION LED TO THE FABRICATION AND TEST OF SEVERAL MEMORY AND FIXED THRESHOLD TRANSISTORS AND 256-BIT MEMORY CIRCUITS. ENVIRONMENTAL TEST DATA TAKEN AT THREE RADIATION SIMULATION SOURCES AND UNDER ENDURANCE STRESS IS PRESENTED ALONG WITH STUDIES ON CIRCUIT DESIGN, PACKAGING, AND SYSTEM DESIGN. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 673 9/2
ILLINOIS UNIV AT URBANA-CHAMPAIGN COORDINATED SCIENCE LAB

HIGH DENSITY OPTICAL MEMORY. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
NOV 75 105P KNOEBEL,H. W. ;KRONE,H. V. ;KIRKWOOD,B. D. ;BURT,J. V. ;HARRIS,D. G. ;
CONTRACT: N00014-67-A-0305-0015

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED APR 75, AD-A009 887.

DESCRIPTORS: *MEMORY DEVICES, COLOR CENTERS, SODIUM CHLORIDE, POTASSIUM CHLORIDE, ELECTROOPTICS, COMPUTER APPLICATIONS, RANDOM ACCESS COMPUTER STORAGE (U)
IDENTIFIERS: *OPTICAL CRYSTAL MEMORIES, ALKALI HALIDES (U)

THE PURPOSE OF THIS RESEARCH IS TO STUDY THE PROBLEMS ASSOCIATED WITH AN EXPERIMENTAL READ-WRITE, RANDOM ACCESS OPTICAL MEMORY AND TO DEMONSTRATE ITS FEASIBILITY. THE MEMORY ELEMENT EMPLOYED IS THE (M SUB A) COLOR CENTER IN KCL:NACL. THE FACT THAT IT IS EXTREMELY WELL STUDIED AND THAT THE WRITING WAVELENGTH IS IN THE VISIBLE RANGE DETERMINED ITS CHOICE FOR THIS STUDY. TOPICS DISCUSSED IN THE REPORT INCLUDE THE FOLLOWING: COLOR CENTER PHYSICS; DIFFRACTION LIMITED FOCUSING AND HEATING EFFECTS; CRYSTAL PREPARATION; THERMO ELECTRIC COOLING; POLARIZATION CONTROL; DEFLECTION SYSTEMS; MEMORY CONTROLLER; COMPUTER INTERFACE; EXPERIMENTAL RESULTS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 828 9/2
NAVAL POSTGRADUATE SCHOOL MONTEREY CALIF

DESIGN CONSIDERATIONS FOR THE NPS SIGNAL PROCESSING AND DISPLAY LABORATORY MULTIPROCESSING OPERATING SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
NOV 75 25P ALLEN,B. E. ;BARKSDALE,G. L. , JR;
REPT. NO. NPS-72AN75111

UNCLASSIFIED REPORT

DESCRIPTORS: *MULTIPROCESSORS, REAL TIME, MEMORY DEVICES, INTERACTIVE GRAPHICS, TIME SHARING, COMPUTER ARCHITECTURE (U)
IDENTIFIERS: *MUNIX SYSTEM, PDP-11/50 COMPUTERS, *OPERATING SYSTEMS(COMPUTERS) (U)

THE DESIGN AND IMPLEMENTATION OF MUNIX, A TIGHTLY-COUPLED SYMMETRIC MULTIPROCESSING PDP 11 BASED OPERATING SYSTEM PROVIDING REAL-TIME, INTERACTIVE, AND BACKGROUND PROCESSING FACILITIES IN A HIERARCHICAL MEMORY ENVIRONMENT IS DESCRIBED. MUNIX IS A VARIANT OF UNIX, AN OPERATING SYSTEM FOR THE PDP 11 DEVELOPED AT BELL LABORATORIES. THE THREE MAJOR DESIGN GOALS OF THE SYSTEM WERE: (1) SUPPORT FOR PROCESSES CAPABLE OF REAL-TIME INTERACTION WITH SEVERAL DYNAMIC GRAPHICS DISPLAY UNITS, AN ARRAY PROCESSOR, AND A MULTI-CHANNEL A/D CONVERTER; (2) INTERACTIVE AND BACKGROUND PROCESSING FACILITIES TO SUPPORT PROGRAM DEVELOPMENT; AND, (3) MANAGEMENT OF THE HIERARCHICAL STORAGE CREATED BY THE MIX OF SHARED AND PRIVATE MEMORIES OF VARIOUS SPEEDS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A021 863 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

PLURIBUS DOCUMENT 1: OVERVIEW. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
MAY 75 15P ORNSTEIN,S. M. ;
REPT. NO. BBN-2999
CONTRACT: F08606-73-C-0027, F08606-75-C-0032
PROJ: ARPA ORDER-2351

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO DOCUMENT 2, AD-A021 864.

DESCRIPTORS: *MULTIPROCESSORS, *COMPUTER ARCHITECTURE, HIGH RATE, BUS CONDUCTORS, COST EFFECTIVENESS, RELIABILITY, INPUT OUTPUT PROCESSING, MEMORY DEVICES, SWITCHING, PARALLEL PROCESSORS, FAULT TOLERANT COMPUTING, CENTRAL PROCESSING UNITS, NETWORKS (U)
IDENTIFIERS: COMPUTER NETWORKS, DESIGN, PLURIBUS COMPUTERS, FAN IN, FAN OUT (U)

THE PLURIBUS IS A RELIABLE, EXPANDABLE, HIGH BANDWIDTH LINE OF MULTI-RESOURCE COMPUTERS ORIGINALLY DEVELOPED FOR USE AS A SWITCHING NODE IN THE ARPA COMPUTER NETWORK. IT CAN BE CONFIGURED WITH ARBITRARY AMOUNTS OF MEMORY AND I/O TAILORED TO SUIT THE APPLICATION; IT IS DESIGNED TO SURVIVE FAILURES AND CONTINUE OPERATION WITHOUT HUMAN INTERVENTION EVEN WHILE REPAIRS ARE IN PROGRESS. THIS REPORT, ONE OF A SET OF NINE VOLUMES DOCUMENTING THE PLURIBUS LINE, PROVIDES A BRIEF OVERVIEW OF THE SYSTEM AS A WHOLE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A021 864 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

PLURIBUS DOCUMENT 2: SYSTEM HANDBOOK. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JAN 75 190P MORGAN,C. R. ;
REPT. NO. BBN-2930
CONTRACT: F08606-73-C-0027, F08606-75-C-0032
PROJ: ARPA ORDER-2351

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO DOCUMENT 1, AD-A021 863.

DESCRIPTORS: *MULTIPROCESSORS, *COMPUTER ARCHITECTURE, HIGH RATE, BUS CONDUCTORS, SWITCHING, HANDBOOKS, INPUT OUTPUT DEVICES, MEMORY DEVICES, CENTRAL PROCESSING UNITS, FAULT TOLERANT COMPUTING, PARALLEL PROCESSORS, COMPUTER PROGRAM DOCUMENTATION, NETWORKS (U)
IDENTIFIERS: COMPUTER NETWORKS, PLURIBUS COMPUTERS, COMPUTER SOFTWARE (U)

THIS REPORT, ONE OF A SET OF NINE VOLUMES DOCUMENTING THE PLURIBUS LINE, PROVIDES A GUIDE TO THE OTHER VOLUMES, A GLOSSARY, AN INDEX, AND AN EXTENSIVE DESCRIPTION OF THE SYSTEM. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A021 919 9/2
IBM FEDERAL SYSTEMS DIV OWEGO N Y

PROGRAM DOCUMENTATION FOR THE VOLTSCAN PROGRAM, (U)

JAN 76 28P MILLER,J. J. , JR;
CONTRACT: F33615-75-C-5152
PROJ: AF-7184
TASK: 718414
MONITOR: AMRL;AMRL TR-76-13,HESS-76-2

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER PROGRAMS, *COMPUTER GRAPHICS, *DIGITAL COMPUTERS, ASSEMBLY LANGUAGES, PUNCHED CARDS, FLOW CHARTING, COMPUTER LOGIC, DIGITIZERS, FORTRAN (U)
IDENTIFIERS: *VOLTSCAN COMPUTER PROGRAM, IBM 370 COMPUTERS, IBM 2250 DISPLAYS, COMPUTER SOFTWARE (U)

THE VOLTSCAN PROGRAM PROVIDES THE CAPABILITY TO GRAPHICALLY DISPLAY FOUR CHANNELS OF DIGITIZED ANALOG SAMPLES. THE PROGRAM WAS WRITTEN FOR AN IBM SYSTEM/370, MODEL 155 COMPUTER OPERATING UNDER THE STANDARD MFT VERSION OF THE OPERATING SYSTEM. ASSEMBLER LANGUAGE AND FORTRAN WERE USED IN CODING THE PROGRAM. THE IBM 2250 GRAPHICS PROGRAMMING SERVICES WERE UTILIZED FOR THE GRAPHIC SOFTWARE SUPPORT. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A022 088 9/2 9/5
MARYLAND UNIV COLLEGE PARK DEPT OF COMPUTER SCIENCE

DYNAMIC FILE ACCESS IN A DISTRIBUTED COMPUTER NETWORK. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
FEB 76 32P MILLS,DAVID L. ;
REPT. NO. TR-415
CONTRACT: N00014-67-A-0239-0032, NSF-GK-41602

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTERS, *NETWORKS, *MULTIPROCESSORS, DISTRIBUTION, COMPUTER PROGRAMS, INTERFACES, INTEREQUIPMENT COMMUNICATION, MINICOMPUTERS, DICTIONARIES, CATALOGS, ADAPTIVE SYSTEMS (U)
IDENTIFIERS: PDP 11 COMPUTERS, PDP 45 COMPUTERS, PDP 40 COMPUTERS, UNIVAC 1106 COMPUTERS, TRANSIENT FAULT RECOVERY (U)

THIS PAPER DESCRIBES THE DESIGN OF A SYSTEM FOR ACCESSING FILES AND OTHER NAMED OBJECTS IN A DISTRIBUTED COMPUTER NETWORK. THE SYSTEM INCLUDES A SET OF MUTUALLY COOPERATING PORTABLE PROCESSES WHICH, TOGETHER WITH OTHER PROCESSES WHICH SUPPORT USER PROGRAMS, CAN MIGRATE DYNAMICALLY BETWEEN THE COMPUTERS OF THE NETWORK. IMPORTANT FEATURES IN THE DESIGN INCLUDE AN EFFICIENT ACCESS METHOD WHICH MINIMIZES DICTIONARY SEARCHES TO FIND A FILE WHEN ITS LOCATION IS UNKNOWN IN ADVANCE AND A ROBUST RECOVERY PROCEDURE THAT INSURES THE INTEGRITY OF THE SYSTEM SHOULD ONE OR MORE OF THE PROCESSES OR COMPUTERS FAIL. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZDM07

AD-A022 175 9/2 9/5
POLYTECHNIC COLL OF CENTRAL LONDON (ENGLAND)*

VARIABLE TOPOLOGY MULTICOMPUTER SYSTEM. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT.,
NOV 75 63P PAKER,YAKUP ;
CONTRACT: DA-ERO-124-74-G-0079
PROJ: DA-1-T-161102-B-31-E
TASK: 1-T-161102-B-31-E-00

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPUTER ARCHITECTURE, *MULTIPROCESSORS, *COMPUTER COMMUNICATIONS, *DIGITAL COMPUTERS, NODES, REAL TIME, NETWORKS, MODELS, CHIPS(ELECTRONICS), INTEGRATED CIRCUITS, SIMULATION, SWITCHING CIRCUITS, HIGH RATE, MEMORY DEVICES (U)
IDENTIFIERS: *VARIABLE TOPOLOGY MULTICOMPUTERS, LARGE SCALE INTERGRATION (U)

THE MAIN FEATURES OF A PROPOSED VARIABLE TOPOLOGY MULTI-COMPUTER (VTM) SYSTEM HAVE BEEN ESTABLISHED. THE COMMUNICATION LINKS BETWEEN THE NODE COMPUTERS OF THE NETWORK CAN BE DESIGNED TO ALLOW THE COMBINATION OF BOTH PACKET AND CIRCUIT SWITCHING TECHNIQUES. DESIGN ASPECTS OF THE INTER-COMPUTER MESSAGE HANDLER ARE DISCUSSED IN DETAIL. VARIOUS ANALYTICAL MODELS OF VTM STRUCTURES HAVE BEEN INVESTIGATED AND THE RESULTS OF A DIGITAL SIMULATION OF THE PERFORMANCE OF A SINGLE NODE COMPUTER ARE PRESENTED. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A022 618 17/9 9/2
SINGER CO SUNNYVALE CALIF SIMULATION PRODUCTS DIV

SIMPLIFIED RADAR AZIMUTH BEAMSPREAD STUDY. (U)

DESCRIPTIVE NOTE: FINAL REPT. 10 MAY-19 DEC 75,
DEC 75 58P WINDSOR,DAVID ;
REPT. NO. UC-7256
CONTRACT: F33657-73-C-0692
PROJ: AF-1183

UNCLASSIFIED REPORT

DESCRIPTORS: *RADAR MAPPING, *BEAM FORMING, *DATA STORAGE SYSTEMS, COMPUTERIZED SIMULATION, ALGORITHMS, AZIMUTH, AIRBORNE, JET FIGHTERS, ELECTRONIC AIRCRAFT, DATA COMPRESSION, FOURIER TRANSFORMATION (U)
IDENTIFIERS: F-4F AIRCRAFT, F-4 AIRCRAFT, E-2C AIRCRAFT, E-2 AIRCRAFT, AN/APQ-110, LITERAL STORAGE (U)

THIS REPORT DESCRIBES A STUDY FOR A SIMPLIFIED BEAMSPREAD SIMULATION FOR USE IN DIGITAL RADAR LANDMASS SIMULATORS. FOUR NEW BEAMSPREAD ALGORITHMS ARE PRESENTED WHICH REQUIRE LESS MEMORY AND COMPUTING HARDWARE THAN THOSE FOUND IN CURRENTLY AVAILABLE SYSTEMS. COMPUTER-GENERATED PHOTOGRAPHS ARE INCLUDED TO GIVE A DIRECT VISUAL COMPARISON OF THE EFFECTS OF THE NEW ALGORITHMS WITH THE EFFECTS OF THE BEAMSPREAD ALGORITHM IN THE F-4F DRLMS.
(AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A022 667 9/2 9/5
HUGHES AIRCRAFT CO CULVER CITY CALIF DATA SYSTEMS DIV

RELIABILITY EVALUATION OF PROGRAMMABLE READ-ONLY MEMORIES (PROMS). (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. 4 MAR 74-3 MAR 75,
FEB 76 288P DONNELLY,T. M. ;POWELL,W. W. ;DEWITT,C. M. , III;JERAND,D. R. ; PENBERG,M. ;
CONTRACT: F30602-74-C-0156
PROJ: AF-5519
TASK: 551904
MONITOR: RADC TR-75-278

UNCLASSIFIED REPORT

DESCRIPTORS: *READ ONLY MEMORIES, *MEMORY DEVICES, *MICROCIRCUITS, RELIABILITY(ELECTRONICS), AVALANCHE DIODES, CIRCUIT ANALYSIS, PROGRAMMED INSTRUCTION, COMPUTER PROGRAMMING, MATRICES(CIRCUITS), HIGH RELIABILITY (U)
IDENTIFIERS: PROM(PROGRAMMABLE READ ONLY MEMORIES), PROGRAMMABLE READ ONLY MEMORIES, TITANIUM TUNGSTEN FUZES (U)

THE PRIMARY OBJECTIVES OF THIS STUDY WERE TO: (1) ASSESS UNIQUE FACTORS AFFECTING THE RELIABILITY OR 1024-BIT OPEN COLLECTOR PROGRAMMABLE READ-ONLY MEMORIES (PROMS) FROM THREE TECHNOLOGIES, I.E., NICHROME FUSIBLE LINKS, TITANIUM-TUNGSTEN FUSIBLE LINKS AND AVALANCHE INDUCED MIGRATION (AIM) OR 'BLOWN DIODE' TECHNOLOGY; (2) RECOMMEND PROGRAMMING, TESTING AND SCREENING GUIDELINES FOR THE SUBJECT PROMS; AND (3) DEVELOP A FAILURE PREDICTION TECHNIQUE FOR THE SUBJECT PROMS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A022 859 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER PROJECT. (U)

DESCRIPTIVE NOTE: SEMI-ANNUAL TECHNICAL REPT. 1 JUL-31 DEC 75.
JAN 76 54P
CONTRACT: MDA903-74-C-0225, ARPA ORDER-2687

UNCLASSIFIED REPORT

DESCRIPTORS: *DATA STORAGE SYSTEMS, *COMMUNICATIONS NETWORKS, TIME SHARING, COMPILERS, DATA MANAGEMENT, MEMORY DEVICES, INTERFACES (U)
IDENTIFIERS: *DATACOMPUTER PROJECT, *COMPUTER NETWORKS, TENEX SYSTEM, COMPUTER STORAGE MANAGEMENT, ARPA COMPUTER NETWORK (U)

THIS REPORT DESCRIBES OUR WORK ON THE DATACOMPUTER SYSTEM FROM JULY 1, 1975 TO DECEMBER 31, 1975. WORK DURING THE REPORTING PERIOD FALLS INTO TWO MAIN CATEGORIES: INSTALLATION AND OPERATION OF DATACOMPUTER VERSION 1, THE FIRST FULL SERVICE VERSION OF THE DATACOMPUTER; AND PREPARATION FOR THE NEXT VERSION, WHICH IS TO INCORPORATE AN AMPEX TERABIT MEMORY SYSTEM. PARALLEL OPERATION OF VERSION 0/11 CONTINUED INTO THIS PERIOD, AND VARIOUS OTHER ACTIVITIES RECEIVED ATTENTION AS WILL BE REPORTED. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A022 862 9/2
MACRODATA CORP WOODLAND HILLS CALIF

RELIABILITY EVALUATION OF SEMICONDUCTOR MEMORIES. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
FEB 76 278P CHIANG,ALBERT C. L. ;
CONTRACT: F30602-74-C-0093
PROJ: AF-5519
TASK: 551904
MONITOR: RADC TR-76-16

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, SEMICONDUCTOR DEVICES, READ ONLY MEMORIES, RANDOM ACCESS COMPUTER STORAGE, RELIABILITY(ELECTRONICS), MILITARY REQUIREMENTS, MICROCIRCUITS (U)
IDENTIFIERS: *SEMICONDUCTOR STORAGE DEVICES, *SEMICONDUCTOR COMPUTER STORAGE, COMPUTER STORAGE DEVICES (U)

THE REPORT PRESENTS A STUDY WHICH WAS CONDUCTED TO EVALUATE THE RELIABILITY OF HIGH USAGE SEMICONDUCTOR MEMORIES. THE STUDY DETERMINED PARAMETRIC AND FUNCTIONAL TESTS WHICH ARE REQUIRED FOR MILITARY SPECIFICATIONS. SPECIAL ATTENTION WAS GIVEN TO THE APPLICATION OF FUNCTIONAL TESTS TO DETECT AND SCREEN OUT DEVICES WITH PATTERN SENSITIVITY. FIVE TYPES WHICH COVER A LARGE PART OF THE WIDE SPECTRUM OF MEMORY DEVICES IN USE TODAY WERE CHOSEN FOR CHARACTERIZATION AND TESTING TO DETERMINE OPTIMUM PARAMETRIC AND FUNCTIONAL TESTS AND LIMITS REQUIRED IN MILITARY SPECIFICATIONS FOR MEMORIES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A023 116 9/2
TEXAS UNIV AT AUSTIN ELECTRONICS RESEARCH CENTER

ANALYSIS OF VIRTUAL MEMORY IMPLEMENTATIONS. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JUL 75 123P WHITE,LIONEL S. , JR.;
WELCH,T. A. ;
REPT. NO. TR-174
CONTRACT: F44620-71-C-0091
PROJ: AF-6813, AF-4751
TASK: 681306
MONITOR: AFOSR TR-76-0190

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, MULTIPLEXING, INTEGRATED CIRCUITS, RANDOM ACCESS COMPUTER STORAGE (U)
IDENTIFIERS: *VIRTUAL MEMORY, SEMICONDUCTOR COMPUTER STORAGE, LOGIC DESIGN (U)

SEMICONDUCTOR MEMORY COMPONENTS PROVIDE OPPORTUNITIES FOR NEW COMPUTER MEMORY STRUCTURES DUE TO TWO ADVANTAGES THEY OFFER OVER CORE MEMORIES: (1) LOGIC CAN BE INTEGRATED INTO THE MEMORY STRUCTURES, AND (2) SMALL BLOCKS OF MEMORY CAN BE ACCESSED INDEPENDENTLY FOR IMPROVED ACCESS FLEXIBILITY. THIS RESEARCH PROPOSES USING THESE PROPERTIES TO ACHIEVE A MORE EFFICIENT IMPLEMENTATION OF A VIRTUAL MEMORY SYSTEM. THE PROPOSED SYSTEM USES NOVEL SEMICONDUCTOR MEMORY CHIPS TO INTEGRATE THE ADDRESS-MAPPING FUNCTION AND THE DATA-MULTIPLEXING FUNCTION INTO THE MEMORY CIRCUITS, WITH CONSEQUENT SAVING OF EXTERNAL OVERHEAD CIRCUITRY. THIS PROPOSED SYSTEM IS COMPARED IN DETAIL WITH A CONVENTIONAL IMPLEMENTATION OF A VIRTUAL MEMORY SYSTEM, SHOWING COST AND PERFORMANCE FIGURES FOR A VARIETY OF SYSTEM CONFIGURATIONS. THE PROPOSED SYSTEM IS SHOWN TO GIVE SUPERIOR RESULTS IN SMALLER MEMORIES OR IN HIGH-PERFORMANCE MEMORIES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A023 227 9/5
RELIABILITY ANALYSIS CENTER GRIFFISS AFB N Y

MICROCIRCUIT DEVICE RELIABILITY: MEMORY/ LSI DATA. (U)

76 215P RICKERS,HENRY C. ;
REPT. NO. RAC-MDR-3
CONTRACT: F30602-73-C-0065

UNCLASSIFIED REPORT

DESCRIPTORS: *INTEGRATED CIRCUITS, *MICROCIRCUITS, *RELIABILITY(ELECTRONICS), MEMORY DEVICES, FABRICATION, SHIFT REGISTERS, READ ONLY MEMORIES, RANDOM ACCESS COMPUTER STORAGE (U)
IDENTIFIERS: LARGE SCALE INTEGRATED CIRCUITS, MICROPROCESSORS, *SEMICONDUCTOR COMPUTER STORAGE (U)

THE COMPENDIUM OF MICROCIRCUIT RELIABILITY DATA IS SEPARATED INTO TWO PARTS: GENERAL LSI TECHNOLOGY SUMMARIES AND DETAILED DATA SECTIONS. THE FIRST PART PRESENTS DESCRIPTIONS OF THE FABRICATION PROCESSES OF THE LSI TECHNOLOGIES, CHARACTERIZATION OF PARAMETERS WHICH INFLUENCE DEVICE RELAIBILITY, AND GENERAL DATA SUMMARIES. THE SECOND PART IS ARRANGED WITH EACH SECTION DEVOTED TO A PARTICULAR MEMORY/LSI DEVICE FUNCTION. EACH SECTION IN PART TWO CONTAINS A DETAILED BREAKDOWN OF PART LEVEL LIFE AND ENVIRONMENTAL/SCREENING TEST RESULTS ARRANGED BY PART MANUFACTURER AND PART NUMBER. IN ADDITION, EACH SECTION CONTAINS DATA SUMMARIES WHICH PROVIDE QUICK INSIGHT INTO LIFE TEST RESULTS, RELIABILITY DEMONSTRATION TEST RESULTS, AND FAILURE CLASSIFICATIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A023 387 9/2
CALIFORNIA UNIV BERKELEY ELECTRONICS RESEARCH LAB

A REVIEW AND PROJECTION OF SEMICONDUCTOR COMPONENTS FOR DIGITAL STORAGE, (U)

NOV 74 14P HODGES,DAVID A. |
CONTRACT: F44620-71-C-0087
PROJ: AF-4751
TASK: 475105
MONITOR: AFOSR TR-76-0428

UNCLASSIFIED REPORT
AVAILABILITY: PUB. IN PROCEEDINGS OF THE IEEE, V63 N8 P1136-1147 AUG 75.

DESCRIPTORS: *MEMORY DEVICES, *INTEGRATED CIRCUITS, *SEMICONDUCTOR DEVICES, METAL OXIDE SEMICONDUCTORS, METAL NITRIDE OXIDE SEMICONDUCTORS, CHARGE COUPLED DEVICES, BIPOLAR TRANSISTORS, COSTS, RELIABILITY(ELECTRONICS), REPRINTS (U)
IDENTIFIERS: *SEMICONDUCTOR COMPUTER STORAGE (U)

EVOLUTION OF PRESENT INTEGRATED-CIRCUIT TECHNOLOGY OVER THE REMAINDER OF THE DECADE SHOULD RESULT IN SEMICONDUCTOR MEMORIES WHICH ARE COMPETITIVE WITH MOVING-SURFACE MEMORIES AND OTHER ALTERNATIVES IN MANY DIGITAL STORAGE APPLICATIONS REQUIRING 10 TO THE 7TH POWER-10 TO THE 10TH POWER BITS CAPACITY. THIS PAPER CONSIDERS MOS, MNOS, CCD, AND BIPOLAR COMPONENT APPROACHES TO THIS OBJECTIVE. COST, RELIABILITY AND POWER CONSUMPTION, AS AFFECTED BY TECHNOLOGICAL CHOICES, RECEIVE ATTENTION. ALTERNATIVE DEVICE TECHNOLOGIES AND CIRCUIT DESIGNS ARE EXAMINED. THE ONE-TRANSISTOR MOS RAM IS SEEN TO HAVE POTENTIAL FOR CONSIDERABLE GROWTH. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A023 443 9/2
ILLINOIS UNIV AT URBANA-CHAMPAIGN COORDINATED SCIENCE LAB

M AND M SYSTEM DESIGN AND OPERATION. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
DEC 75 73P JACOBUS,CHARLES JERIMIAH ;
REPT. NO. R-709, UILU-ENG-75-2245
CONTRACT: DAAB07-72-C-0259, F33615-73-C-1238

UNCLASSIFIED REPORT

DESCRIPTORS: *MINICOMPUTERS, *MULTIPROCESSORS, *COMPUTER PROGRAMMING, MEMORY DEVICES, DATA MANAGEMENT, CONSOLES, COMPUTER ARCHITECTURE, REAL TIME, INPUT OUTPUT PROCESSING, DEBUGGING(COMPUTERS) (U)
IDENTIFIERS: MULTIPROGRAMMING, PDP 11 COMPUTERS, MEMORY MANAGEMENT, *PDP-11/40 COMPUTERS, *OPERATING SYSTEMS(COMPUTERS) (U)

THIS DOCUMENT DESCRIBES THE OPERATION AND DESIGN OF A MULTIPROGRAMMING OPERATING SYSTEM WRITTEN FOR THE PDP-11/40 WITH MEMORY MANAGEMENT OPTION. NO PARTICULAR SYSTEM DEVICE IS REQUIRED IN THAT ALL SYSTEM MODULES RESIDE IN CORE. CONTROL COMMANDS ARE ISSUED THROUGH ONE SYSTEM CONSOLE AND MULTIPROCESSING IS INITIATED FROM A ROOT TASK STARTED THROUGH COMMANDS TYPED TO THIS CONSOLE. THIS SYSTEM IS PRIMARILY SINGLE USER WITH MULTIPROCESSING OPTIONS. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A023 598 8/11 9/2
COMPUTER CORP OF AMERICA CAMBRIDGE MASS

DATACOMPUTER SUPPORT OF SEISMIC DATA ACTIVITY. (U)

DESCRIPTIVE NOTE: QUARTERLY TECHNICAL REPT. 1 NOV 75-31 JAN 76.
JAN 76 14P
CONTRACT: MDA903-74-C-0227, ARPA ORDER-2613

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO REPORT DATED 31 OCT 75, AD-A019 961.

DESCRIPTORS: *SEISMIC DATA, *DATA PROCESSING, *DATA STORAGE SYSTEMS, INFORMATION RETRIEVAL, COMPUTER PROGRAMMING, COMMUNICATIONS NETWORKS, INTERFACES (U)
IDENTIFIERS: ARPA COMPUTER NETWORK, COMPUTER NETWORKS, SEISMIC INPUT PROCESSORS, *DATACOMPUTER (U)

PROJECT ACTIVITY CAN BE DIVIDED INTO FOUR CATAGORIES: (1) SIP DEVELOPMENT AND NETWORK BANDWIDTH CONSIDERATIONS; (2) TBM ACQUISITION AND INTEGRATION INTO THE DATACOMPUTER; (3) COORDINATION WITH THE SEISMIC COMMUNITY; AND (4) SEISMIC-DATA RELATED DATACOMPUTER DEVELOPMENT. ONE SECTION IN THIS REPORT IS DEVOTED TO EACH OF THESE CATAGORIES. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A023 931 9/2
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

AN EFFICIENT IMPLEMENTATION OF MONITORS AND CONDITION VARIABLES. (U)

DESCRIPTIVE NOTE: TECHNICAL NOTE,
AUG 75 24P SAXENA,ASHOK R. |
REPT. NO. TN-72
CONTRACT: N00014-67-A-0112-0044
PROJ: AF-7151

UNCLASSIFIED REPORT

DESCRIPTORS: *MONITORS, PARALLEL PROCESSING, MEMORY DEVICES, BOOLEAN ALGEBRA, PROCESSING EQUIPMENT, PARALLEL PROCESSING, CODING, COMPUTER COMMUNICATIONS (U)
IDENTIFIERS: SEMAPHORES, STRUCTURED PROGRAMMING (U)

THIS PAPER PRESENTS A PROPOSAL FOR AN IMPLEMENTATION OF MONITORS AND CONDITION VARIABLES. THE PROPOSED IMPLEMENTATION ALLOWS THE USE OF A LARGE NUMBER OF MONITORS AND CONDITION VARIABLES WITH MAIN MEMORY REQUIREMENTS PROPORTIONAL TO THE NUMBER OF CONCURRENT PROCESSES AND THE MAXIMUM DEPTH OF NESTED MONITOR CALLS. THE PROPOSED IMPLEMENTATION IS USEFUL FOR OPERATING SYSTEMS WITH A FIXED (AND SMALL) NUMBER OF CONCURRENT PROCESSES WITH VIRTUAL MEMORY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A024 019 9/2 17/2
NAVAL RESEARCH LAB WASHINGTON D C

RANDOM BIT GENERATOR. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
MAR 76 47P CHAYT,KENNETH A. ;
REPT. NO. NRL-MR-3249
PROJ: NRL-R01-62, XCCS!

UNCLASSIFIED REPORT

DESCRIPTORS: *RANDOM NUMBER GENERATORS, *ERROR CORRECTION CODES, *VOICE COMMUNICATIONS, DATA PROCESSING, DIGITAL SYSTEMS, SEQUENCES, CHANNELS, BINARY NOTATION, INTEGRATED CIRCUITS (U)
IDENTIFIERS: *RANDOM NUMBER GENERATORS, VOICE PROCESSORS, THUMBWHEEL SWITCHES (U)

A RANDOM BIT GENERATOR (RBG) HAS BEEN BUILT BY NRL TO AID IN EVALUATING DIGITAL VOICE PROCESSORS IN A CONTROLLED ERROR ENVIRONMENT. THE RBG INTRODUCES INDEPENDENT, EQUIPROBABLE BIT ERRORS INTO THE DIGITAL OUTPUT OF THE PROCESSOR UNDER TEST. THUMBWHEEL SWITCHES ON THE RBG ALLOW SELECTION OF THE DESIRED BIT ERROR RATE. THE RANDOM-NUMBER GENERATOR USED IN THE RBG WAS COMPREHENSIVELY TESTED TO VERIFY ITS STOCHASTICITY. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A024 665 12/1 9/2
SYRACUSE UNIV N Y DEPT OF ELECTRICAL AND COMPUTER ENGINEERING

AN APPROACH OF DEVELOPING FAST TRANSFORM ALGORITHMS. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
MAR 76 136P YANG,SUN-MAW ;FENG,TSE-YUN ;
CONTRACT: F30602-74-C-0335
PROJ: AF-5581
TASK: 558102
MONITOR: RADC TR-76-92

UNCLASSIFIED REPORT

DESCRIPTORS: *FOURIER TRANSFORMATION, *ALGORITHMS, WALSH TRANSFORMATION, WALSH FUNCTIONS, DIGITAL FILTERS, DATA STORAGE SYSTEMS, THEOREMS, PARALLEL PROCESSING, ASSOCIATIVE PROCESSING, MATRICES(MATHEMATICS) (U)
IDENTIFIERS: *FAST FOURIER TRANSFORMS, COMPUTING TIME, FAST WALSH TRANSFORMS, *HADAMARD TRANSFORMATION (U)

TO SUMMARIZE FOR EACH CHAPTER, CHAPTER 2 GIVES A METHOD TO DESCRIBE FAST TRANSFORM ALGORITHM AND ILLUSTRATE IT BY APPLYING IT FOR TWO CLASSES OF INPUT FOR FFT. CHAPTER 3 DERIVES A NEW DEFINITION OF WALSH FUNCTIONS AND ILLUSTRATES ITS USEFULNESS BY APPLYING IT FOR WALSH TRANSFORM, AND WALSH SUMMING AND DIFFERENCING TRANSFORMS. SEVERAL POTENTIAL APPLICATIONS ARE ALSO POINTED OUT. CHAPTER 4 PRESENTS A GENERALIZED FWT ALGORITHM WHICH IS OBTAINED FROM PREVIOUS RESULTS IN THIS STUDY TOGETHER WITH THE RESULT OF PRESENTLY EXISTING FWT ALGORITHMS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A024 966 9/2
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER SCIENCE

AN APPROACH TO GLOBAL REGISTER ALLOCATION. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
DEC 75 141P JOHNSSON,RICHARD KARL ;
CONTRACT: F44620-73-C-0074, ARPA ORDER-2466
MONITOR: AFOSR TR-76-0603

UNCLASSIFIED REPORT

DESCRIPTORS: *COMPILERS, *DATA STORAGE SYSTEMS, *COMPUTER PROGRAMS, *SHIFT REGISTERS, *ADAPTIVE SYSTEMS, PROGRAMMING LANGUAGES, ALGORITHMS, MACHINE CODING, HIGH LEVEL LANGUAGES, DECISION MAKING, POSITION(LOCATION), GLOBAL, TARGETS (U)
IDENTIFIERS: *REGISTER ALLOCATION (U)

THE THESIS PRESENTS AN APPROACH TO THE PROBLEM OF GLOBAL REGISTER ALLOCATION AS PERFORMED BY AN OPTIMIZING COMPILER. THE PROBLEM CONSIDERED IS ACTUALLY THE MORE GENERAL ONE OF CHOOSING WHAT PHYSICAL RESOURCE WITHIN THE TARGET MACHINE WILL BE USED TO HOLD THE RESULTS OF VARIOUS COMPUTATIONS IN A RUNNING PROGRAM. THE RESULTS MAY BE THE VALUES OF COMMON (REDUNDANT) SUBEXPRESSIONS, PARTIAL RESULTS DEVELOPED DURING EXPRESSION EVAULATION, OR VARIABLES DECLARED BY THE PROGRAMMER. AN OPTIMIZING COMPILER CAN MAKE BETTER USE OF THE RESOURCES OF THE TARGET MACHINE IF THESE DECISIONS ARE ALL CONSIDERED TOGETHER AT OR NEAR THE SOURCE LEVEL RATHER THAN BEING DISTRIBUTED THROUGHOUT THE COMPILER AND OPERATING AT BOTH SOURCE AND OBJECT LEVELS. A DECOMPOSITION OF AN OPTIMIZING COMPILER IS PRESENTED WITH RESEARCH FOCUSING ON ONE PART OF THE COMPILER, NAMELY THE PART WHICH ASSIGNS THE COMPUTED RESULTS TO PHYSICAL LOCATIONS. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 173 9/2 12/1
CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER SCIENCE

COPYING LIST STRUCTURES WITHOUT AUXILIARY STORAGE. (U)

DESCRIPTIVE NOTE: INTERIM REPT.,
OCT 75 32P CLARK,DOUGLAS W. ;
CONTRACT: F44620-73-C-0074, ARPA ORDER-2466
MONITOR: AFOSR TR-76-0599

UNCLASSIFIED REPORT

DESCRIPTORS: *WORD ORGANIZED STORAGE, *ALGORITHMS, STRUCTURES, BINARY NOTATION, MEMORY DEVICES, ADDRESSING, CELLS, VARIABLES (U)
IDENTIFIERS: *COPYING LIST STRUCTURES (U)

AN ALGORITHM IS PRESENTED FOR COPYING AN ARBITRARY LIST STRUCTURE INTO A BLOCK OF CONTIGUOUS STORAGE LOCATIONS WITHOUT DESTROYING THE ORIGINAL LIST. APART FROM A FIXED NUMBER OF PROGRAM VARIABLES, NO AUXILIARY STORAGE, SUCH AS A STACK, IS USED. THE ALGORITHM NEEDS NO MARK BITS AND OPERATES IN LINEAR TIME. IT IS SHOWN TO BE SIGNIFICANTLY FASTER THAN THE BEST PREVIOUS ALGORITHM FOR THE SAME PROBLEM. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 206 9/2
STANFORD UNIV CALIF DIGITAL SYSTEMS LAB

FEASIBILITY OF REAL TIME EMULATION. (U)

DESCRIPTIVE NOTE: FINAL REPT.,
NOV 75 10P FLYNN,MICHAEL J. ;
REPT. NO. TN-70
CONTRACT: AF-AFOSR-2865-75
PROJ: AF-9769
TASK: 976902
MONITOR: AFOSR TR-76-0541

UNCLASSIFIED REPORT

DESCRIPTORS: *REAL TIME, *MICROPROGRAMMING, CENTRAL PROCESSING UNITS, PROGRAMMING LANGUAGES, COMPUTER ARCHITECTURE, COMPUTER PROGRAM DOCUMENTATION, DEBUGGING(COMPUTERS), MEMORY DEVICES, IMAGES, DATA PROCESSING EQUIPMENT, FEASIBILITY STUDIES (U)
IDENTIFIERS: *EMULATORS(COMPUTERS), COMPUTER SOFTWARE, HOST COMPUTERS (U)

THIS PROJECT HAS STUDIED SEVERAL ALTERNATE METHODS FOR THE REALIZATION OF HIGH PERFORMANCE EMULATION. HIGH PERFORMANCE OR REAL-TIME EMULATION OCCURS WHEN A HOST MACHINE IS ABLE TO INTERPRET THE INSTRUCTIONS OF ANOTHER MACHINE (CALLED THE IMAGE MACHINE) IN THE SAME TIME AS THAT MACHINE WOULD HAVE EXECUTED THE SAME SET OF INSTRUCTIONS. OCCASIONALLY SUCH INTERPRETATION OCCURS AT AN EVEN FASTER RATE THAN THE ORIGINAL IMAGE MACHINE. WE LABEL THIS PHENOMENON HYPER-REAL-TIME EMULATION. SEVERAL ORGANIZATIONS HAVE BEEN STUDIED AS WELL AS ORGANIZATIONAL EXTENSIONS TO OUR PRESENT EMMY ORGANIZATION. THE MOST PROMISING STRUCTURES THAT WE HAVE DEVELOPED ARE EXTENSIBLE, OVER-LAPPED PROCESSORS. AN INDEPENDENT, ORDER OF MAGNITUDE, PERFORMANCE IMPROVEMENT IS AVAILABLE THROUGH OTHER TECHNIQUES CALLED DIRECTLY EXECUTED LANGUAGES. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A025 292 9/2 5/2
DAVID W TAYLOR NAVAL SHIP RESEARCH AND DEVELOPMENT CENTER
BETHESDA MD

GRAPH INFORMATION RETRIEVAL LANGUAGE:
PROGRAMMING MANUAL FOR FORTRAN COMPLEMENT.
REVISION ONE. (U)

DESCRIPTIVE NOTE: RESEARCH AND DEVELOPMENT REPT.,
FEB 76 59P BERKOWITZ,SIDNEY ;
REPT. NO. DTNSRDC-76-0085
PROJ: SR014-03
TASK: SR014-03-01

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *PROGRAMMING MANUALS, *PROGRAMMING LANGUAGES, *INFORMATION RETRIEVAL, GRAPHS, PATTERN RECOGNITION, COMPUTATIONAL LINGUISTICS, SEMANTICS, FORTRAN, SYNTAX, SCHEDULING, ASSOCIATIVE PROCESSING, MEMORY DEVICES, COMPUTER FILES (U)
IDENTIFIERS: *GIRL PROGRAMMING LANGUAGE, ASSOCIATIVE MEMORIES (U)

GIRL (GRAPH INFORMATION RETRIEVAL LANGUAGE) IS A PROGRAMMING LANGUAGE DESIGNED TO CONVENIENTLY MANIPULATE INFORMATION IN GRAPH STRUCTURES. AS SUCH, THE LANGUAGE WILL PLAY A KEY ROLE IN THE CONSTRUCTION OF THE ORGANIZATIONAL SCHEMES FOUND, FOR EXAMPLE, IN INFORMATION RETRIEVAL, PATTERN RECOGNITION PROBLEMS, LINGUISTIC ANALYSIS, AND PROCESS SCHEDULING SYSTEMS. THE LANGUAGE IS WRITTEN TO COMPLEMENT AN ALGEBRAIC LANGUAGE, IN THE SENSE THAT GIRL STATEMENTS ARE DISTINGUISHED FROM THE STATEMENTS OF THE ALGEBRAIC LANGUAGE AND THE STATEMENTS MAY BE INTERLEAVED. THE PRIMARY ADVANTAGE OF SEPARATING SYMBOLIC AND NUMERIC STATEMENTS IS THAT THE PROGRAMMER IS AFFORDED A LINEAR, ONE-ONE-TRACE OF GRAPH OPERATIONS IN THE CODE DESCRIPTION. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL No. /ZOM07

AD-A025 686 9/2 8/2
PRC INFORMATION SCIENCES CO MCLEAN VA

GRAPHIC LINE SYMBOLIZATION SYSTEM. VOLUME I. SYSTEMS ANALYSIS AND DESIGN. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. SEP 73-APR 75, MAR 76 93P BELL,PAUL D. ;NEUFFER,JOHN A. ;TAYLOR,M. LYNN ;
CONTRACT: F30602-74-C-0027
PROJ: AF-3202
TASK: 320203
MONITOR: RADC TR-76-86-VOL-1

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SEE ALSO VOLUME 2, AD-A025 687.

DESCRIPTORS: *COMPUTER GRAPHICS, *MAPPING, *DATA PROCESSING, *SYMBOLS, *SYSTEMS ANALYSIS, DIGITAL COMPUTERS, PLOTTING, INTERFACES, DIGITIZERS, MEMORY DEVICES, BATCH PROCESSING, PROGRAMMING LANGUAGES, LINES(GEOMETRY), COMPUTER PROGRAM DOCUMENTATION, COMPUTER ARCHITECTURE (U)
IDENTIFIERS: HIS 635 COMPUTERS, COMPUTER SOFTWARE, DESIGN, AUTOMATIC MAPPING (U)

THIS REPORT DOCUMENTS WORK PERFORMED IN THE DEVELOPMENT OF A GRAPHIC LINE SYMBOLIZATION SYSTEM (GLSS) FOR THE DEFENSE MAPPING AGENCY-AEROSPACE CENTER. GLSS PROVIDES A WIDE RANGE OF DATA PROCESSING CAPABILITIES RELATED TO CARTOGRAPHIC SYMBOLOGY. THESE INCLUDE ALL LINEAL SYMBOLS AND MANY POINT SYMBOLS TO SUPPORT AND 1:200,000 SERIES CHART PRODUCTION. THE SYSTEM ALSO INCLUDES A NUMBER OF LINE CLEANING AND DATA CULLING FUNCTIONS. THE SYSTEM HAS BEEN DESIGNED TO BE HIGHLY FLEXIBLE AS TO INPUT/OUTPUT OPTIONS AND SYMBOL SPECIFICATIONS BUILD, UPDATE AND OVERRIDE. THE REPORT IS IN THREE VOLUMES: VOLUME 1 - SYSTEM ANALYSIS AND DESIGN; VOLUME 2 - SYSTEM IMPLEMENTATION, OPERATING PROCEDURES AND TESTING; AND VOLUME 3 - PROGRAM DOCUMENTATION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 687 9/2 8/2
PRC INFORMATION SCIENCES CO MCLEAN VA

GRAPHIC LINE SYMBOLIZATION SYSTEM. VOLUME II. SYSTEM IMPLEMENTATION, OPERATING PROCEDURES AND TESTING. (U)

DESCRIPTIVE NOTE: FINAL TECHNICAL REPT. SEP 73-APR 75, MAR 76 81P BELL,PAUL D. ;NEUFFER,JOHN A. ;TAYLOR,M. LYNN ;
CONTRACT: F30602-74-C-0027
PROJ: AF-3202
TASK: 320203
MONITOR: RADC TR-76-86-VOL-2

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE:

DESCRIPTORS: *COMPUTER GRAPHICS, *MAPPING, *OPERATIONAL TEST AND EVALUATION, *SYMBOLS, *DATA PROCESSING, COMPUTER PROGRAMS, DIGITAL COMPUTERS, LINES(GEOMETRY), MEMORY DEVICES, BATCH PROCESSING, SPECIFICATIONS, MODES, COMPUTER FILES, DATA PROCESSING EQUIPMENT (U)
IDENTIFIERS: HIS 635 COMPUTERS (U)

THE PURPOSE OF VOLUME 2 OF THE FINAL TECHNICAL REPORT IS TO DESCRIBE THE MAJOR ATTRIBUTES OF THE SYSTEM IMPLEMENTATION, SYSTEM OPERATING PROCEDURES, AND SUMMARY RESULTS OF SYSTEM TESTING. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A025 888 9/2
BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

THE TERMINAL INTERFACE MESSAGE PROCESSOR PROGRAM. (U)

MAY 76 228P
REPT. NO. TECHNICAL INFORMATION-91
CONTRACT: DAHC15-69-C-0179, F08606-73-C-0027

UNCLASSIFIED REPORT

SUPPLEMENTARY NOTE: SUPERSEDES AD-A024 905.
SPONSORED IN PART BY CONTRACT F08606-75-C-0032.

DESCRIPTORS: *DATA PROCESSING TERMINALS, *COMPUTER PROGRAMMING, MEMORY DEVICES, REAL TIME, MESSAGE PROCESSING, SYNTAX, INTERFACES (U)
IDENTIFIERS: COMPUTER NETWORKS, *INTERFACE MESSAGE PROCESSORS, PROTOCOLS, COMPUTER SOFTWARE, COMPUTER HARDWARE (U)

CONTENTS: OVERVIEW OF THE TERMINAL IMP HARDWARE; SOFTWARE SUMMARY; PERFORMANCE SUMMARY; SUMMARY OF PROTOCOL DESIGN DECISIONS AND PROTOCOL DEVIATIONS; REFERENCES AND TIP BIBLIOGRAPHY; STORAGE LAYOUT; DATA STRUCTURES; DETAILED SOFTWARE DESCRIPTION. (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-A026 217 9/2
GENERAL ELECTRIC CORPORATE RESEARCH AND DEVELOPMENT SCHENECTADY N Y

DESIGN, FABRICATION, AND EVALUATION OF AN ELECTRON BEAM ADDRESSABLE HIGH INFORMATION DENSITY MEMORY TUBE. (U)

DESCRIPTIVE NOTE: INTERIM REPT. NO. 3, 1 SEP 75-31 JAN 76,
JUN 76 41P LEMMOND,C. Q. ;HUGHES,W. C. ;KIRKPATRICK,C. G. ;BUSCHMANN,E. C. ; GRUP ,H. W. ;
REPT. NO. SRD-76-065
CONTRACT: DAAB07-75-C-1312
PROJ: DA-1-S-762705-AH-94-D
TASK: 1-S-762705-AH-94-D-205
MONITOR: ECOM 75-1312-3

UNCLASSIFIED REPORT

DESCRIPTORS: *MEMORY DEVICES, ELECTRON TUBES, ELECTRON OPTICS, ELECTRON BEAMS, DATA RATE, DIGITAL COMPUTERS (U)
IDENTIFIERS: BORAM (U)

ELECTRON OPTICAL COMPONENT IMPROVEMENTS WERE MADE TO SIMPLIFY THE TUBE CONSTRUCTION AND AS FIRST STEPS TOWARD RUGGEDIZING THE TUBE. THESE MODIFICATIONS WERE THOROUGHLY TESTED, AND THE RESULTS INDICATE EXTREMELY STABLE BEAM CONTROL AS WELL AS A DESIGN THAT CAN MORE EASILY BE MADE RUGGED. TESTS TO VERIFY TUBE OPERATION CAPABILITY AT 10 MEGABIT DATA RATES WERE SUCCESSFULLY COMPLETED. STORAGE TARGET IMPROVEMENTS CONTINUE. (AUTHOR) (U)

DDC REPORT BIBLIOGRAPHY SEARCH CONTROL NO. /ZOM07

AD-B001 372 9/2 17/2.1
NAVAL SURFACE WEAPONS CENTER DAHLGREN LAB VA

INITIAL SOFTWARE FOR EMPASS EP-3A DIGITAL SYSTEM. (U)

DESCRIPTIVE NOTE: TECHNICAL REPT.,
JAN 75 41P CAMPBELL,ALICE J. ;PALMER, BENNETT S. ;
REPT. NO. NSWC/DL-TR-3212

UNCLASSIFIED REPORT

DESCRIPTORS: (*DATA ACQUISITION, *SIGNAL PROCESSING), (*RADIO RECEIVERS, *COMPUTER PROGRAMS), (*RADIO SIGNALS, *DATA STORAGE SYSTEMS), TIME SHARING, INFORMATION, SEARCHING, INTERROGATION, INFORMATION RETRIEVAL, DATA PROCESSING, DIGITAL COMPUTERS, MAGNETIC TAPE, DIGITAL RECORDING SYSTEMS, NAVIGATION, NAVAL AIRCRAFT, DATA BASES, INPUT OUTPUT PROCESSING, DATA PROCESSING EQUIPMENT, REAL TIME, TELEVISION DISPLAY SYSTEMS, GRAPHICS, OPERATORS(PERSONNEL), REMOTE TERMINALS, ERRORS, ON LINE SYSTEMS, TACTICAL ANALYSES, AIRBORNE, NAVIGATION COMPUTERS, DATA TRANSMISSION SYSTEMS, ELECTRONIC AIRCRAFT (U)
IDENTIFIERS: UNIVAC 1830A COMPUTERS, EMPASS(ELECTROMAGNETIC PERFORMANCE OF AIR AND SHIP SYSTEMS), ELECTROMAGNETIC PERFORMANCE OF AIR AND SHIP SYSTEMS, CDC 6700 COMPUTERS, EP-3A AIRCRAFT, P-3 AIRCRAFT (U)

A DIGITAL SYSTEM DEVELOPED TO SUPPORT THE ELECTROMAGNETIC PERFORMANCE OF AIR AND SHIP SYSTEMS (EMPASS) PROJECT AS NSWC/DL IS REPORTED. THE AIRBORNE SYSTEM CONSISTS OF RF RECEIVERS AND ANTENNAS WITH SPECIAL RELAYS AND INTERFACE UNITS WHICH ALLOW A UNIVAC 1830A COMPUTER TO INTERROGATE AND CONTROL THEM. AIRCRAFT POSITION, RF SIGNAL, AND SYSTEM STATUS MEASUREMENTS ARE RECORDED DIGITALLY ON MAGNETIC TAPE WHILE OPERATOR DISPLAYS ARE PROVIDED FOR SOME IMMEDIATE DATA ANALYSIS AND SYSTEM MONITORING. THE SOFTWARE FOR THIS DATA ACQUISITION SYSTEM WAS DESIGNED AND DEVELOPED AT NSWC/DL AND IS CURRENTLY BEING USED ON TEST AND MEASUREMENT MISSIONS OF THE EMPASS AIRCRAFT. (AUTHOR) (U)

CORPORATE AUTHOR - MONITORING AGENCY

•AEROSPACE CORP EL SEGUNDO CALIF
ENGINEERING SCIENCE OPERATIONS

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TR-0075(5112)-7
MICROPROCESSORS AND MICROCOMPUTERS.
(SAMSO-TR-75-206)
AD-A014 823

•AEROSPACE MEDICAL RESEARCH LAB WRIGHT-PATTERSON AFB OHIO

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AMRL-HESS-76-2
PROGRAM DOCUMENTATION FOR THE VOLTSCAN PROGRAM.
AD-A021 919

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PROGRAM DOCUMENTATION FOR THE VOLTSCAN PROGRAM.
AD-A021 919

•AEROSPACE RESEARCH LABS WRIGHT-PATTERSON AFB OHIO

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ARL-75-0031
SWITCHING AND MEMORY EFFECTS IN PHOSPHORUS-ION-IMPLANTED ZNSE DEVICES.
AD-A007 759

•AIR FORCE AERO PROPULSION LAB WRIGHT-PATTERSON AFB OHIO

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AFAPL-TR-75-31
A CDC 6600-BASED CROSS-ASSEMBLER FOR THE HP2114 MINICOMPUTER.
AD-A015 033

•AIR FORCE ARMAMENT LAB EGLIN AFB FLA

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AFATL-TR-73-147
A COMPUTER PROGRAM FOR EXTRACTING AERODYNAMIC DATA FROM MAGNETIC TAPE.
AD- 912 646

•AIR FORCE AVIONICS LAB WRIGHT-PATTERSON AFB OHIO

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AFAL-TR-72-82
AEROSPACE MULTIPROCESSOR EXECUTIVE.
AD- 900 282

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AFAL-TR-72-362
PLASMA ANODIZATION.
AD- 760 171

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AFAL-TR-73-31
SURVIVABLE P-CHANNEL METAL-OXIDE-SEMICONDUCTOR (PMOS) COMPUTER DESIGN.
AD- 759 189

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AFAL-TR-75-80
DISTRIBUTED PROCESSOR/MEMORY ARCHITECTURES DESIGN PROGRAM.
AD-A016 482

•AIR FORCE CAMBRIDGE RESEARCH LABS HANSCOM AFB MASS

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GRAPPAC: A PACKAGE OF FORTRAN SUBROUTINES FOR USE WITH THE 6000 SERIES 274 INTERACTIVE GRAPHICS SYSTEM OF THE CONTROL DATA CORPORATION.
AD- 755 395

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AFCRL-TR-73-0175
RESEARCH IN FERROMAGNETICS: DOMAIN TIP DEVICES.
AD- 763 086

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EFFECTS OF NUCLEAR RADIATION ON MAGNETIC BUBBLE DOMAIN MATERIALS AND DEVICES.
AD-A011 702

•AIR FORCE FLIGHT TEST CENTER EDWARDS AFB CALIF

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AFFTC-TD-74-2
A TRANSPOSITION ALGORITHM FOR DIGITAL DATA COMPRESSION KEYS.
AD-A006 798

•AIR FORCE MATERIALS LAB WRIGHT-PATTERSON AFB OHIO

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EXPLORATORY DEVELOPMENT OF MAGNETIC BUBBLE DOMAIN MATERIAL FOR APPLICATION IN AIR FORCE SOLID STATE MASS MEMORY SYSTEMS.
AD-A014 364

•AIR FORCE OFFICE OF SCIENTIFIC RESEARCH BOLLING AFB D C

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AFOSR-TR-72-1911
SOME DIAGNOSTIC APPROACHES FOR COMPUTER SYSTEM DESIGN.
AD- 758 243

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SEQUENCING STRATEGIES IN PIPELINE COMPUTER SYSTEMS.
AD- 756 475

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IMPROVEMENT IN A SYSTEM'S THROUGHPUT--FROM THE STANDPOINT OF FILE ORGANIZATION AND SEARCHING STRATEGIES.
AD- 757 495

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OPTIMAL SQUARE-ROOTING ALGORITHMS FOR HARDWARE IMPLEMENTATION.
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AFOSR-TR-74-0010
MEMORY-USE ESTIMATOR FUNCTION OF A PROGRAM EXECUTING IN PAGING ENVIRONMENT.
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AFOSR-TR-74-1773
A NEW APPROACH TO THE REALIZATION OF NONRECURSIVE DIGITAL FILTERS.
AD-A001 953

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SOME NEW REALIZATIONS OF DEDICATED HARDWARE DIGITAL SIGNAL PROCESSORS.

AD-A003 987

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AFOSR-TR-75-0036
ON THE IMPLEMENTATION OF A PHYSICAL DATA MODEL FOR TRANSLATION.
AD-A003 737

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AFOSR-TR-75-0038
A DATA DESCRIPTION LANGUAGE APPROACH TO FILE TRANSLATION.
AD-A003 715

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AFOSR-TR-75-0132
A MEMORY-PROCESS MODEL OF SYMBOLIC ASSIMILATION.
AD-A004 331

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AFOSR-TR-75-0196
THE OPTIMAL SELECTION OF SECONDARY INDICES FOR FILES.
AD-A005 692

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AFOSR-TR-75-1265
A NEW HARDWARE REALIZATION OF DIGITAL FILTERS.
AD-A015 112

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AFOSR-TR-75-1675
SEMANTIC MODELS FOR PARALLEL SYSTEMS.
AD-A019 661

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AFOSR-TR-76-0016
FUNCTIONAL DESCRIPTION OF THE EMMY MAIN MEMORY SYSTEM.
AD-A021 148

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AFOSR-TR-76-0018
SYSTEM/360 EMULATOR PERFORMANCE ESTIMATE.
AD-A020 746

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AFOSR-TR-76-0190
ANALYSIS OF VIRTUAL MEMORY IMPLEMENTATIONS.
AD-A023 116

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AFOSR-TR-76-0428
A REVIEW AND PROJECTION OF SEMICONDUCTOR COMPONENTS FOR DIGITAL STORAGE.
AD-A023 387

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FEASIBILITY OF REAL TIME EMULATION.
AD-A025 206

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AFOSR-TR-76-0599
COPYING LIST STRUCTURES WITHOUT AUXILIARY STORAGE.
AD-A025 173

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AFOSR-TR-76-0603
AN APPROACH TO GLOBAL REGISTER ALLOCATION.
AD-A024 966

•AIR FORCE WEAPONS LAB KIRTLAND AFB N MEX

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AFWL-TR-73-115
PLATED-WIRE MEMORY STATE-OF-THE-ART STUDY (1972).
AD- 911 659

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DESIGN AND FABRICATION OF RADIATION-HARDENED MNOS MEMORY ARRAY.
AD-A021 421

•APPLIED DATA RESEARCH INC WAKEFIELD MASS

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CADD-7208-1411-VOL-2
COMPILER DESIGN FOR THE ILLIAC IV. VOLUME II.
(AROD-9187.6-A)
AD- 748 226

•ARMY AUDIT AGENCY WASHINGTON D C

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AUDIT: ARMY UNIFORM DATA INQUIRY TECHNIQUE - COMPUTER PROGRAMS.
AD- 777 100

•ARMY COMPUTER SYSTEMS COMMAND FORT BELVOIR VA

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USACSC-AT-74-06-VOL-1
MULTICOMMAND NETWORKS PROJECTS FOR THE U.S. ARMY COMPUTER SYSTEMS COMMAND. VOLUME I. SURVEY PLAN FOR SELECTED ARMY DATA PROCESSING INSTALLATIONS.
AD-A003 253

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USACSC-AT-75-03
AN ALGORITHM FOR BLOCKING FACTOR OPTIMIZATION.
AD-A013 829

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RESEARCH INTO THE DEVELOPMENT OF A LOW-COST HARDWARE MONITOR.
AD-A016 951

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ECOM-0058-61
A CLASS OF OPERATIONS SUITABLE FOR FRACTIONAL-SIZE ASSOCIATIVE MEMORIES.
AD- 753 403

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ECOM-73-0306-F
LONG TERM MEMORY IN JUNCTION DEVICES USING MULTIVALENT TRAPPING IMPURITIES IN SILICON.
AD-A018 213

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ECOM-75-1312-3
DESIGN, FABRICATION, AND EVALUATION OF AN ELECTRON BEAM ADDRESSABLE HIGH INFORMATION DENSITY MEMORY TUBE.
AD-A026 217

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ECOM-0098-72-F
DESIGN, FABRICATION, AND EVALUATION OF AN ELECTRON BEAM ADDRESSABLE HIGH INFORMATION DENSITY MEMORY TUBE.
AD-A002 694

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ECOM-0258-3
SINGLE CRYSTAL CYLINDRICAL MAGNETIC DOMAIN MATERIALS FOR MEMORY APPLICATIONS.

AD- 749 267

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ECOM-0258-4-70
SINGLE CRYSTAL CYLINDRICAL MAGNETIC DOMAIN MATERIALS FOR MEMORY APPLICATIONS.
AD- 763 224

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ECOM-0344-F-71
DIGITAL INTERFACE CODE CONVERTER.
AD- 908 524

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ECOM-1312-1-75
DESIGN, FABRICATION, AND EVALUATION OF AN ELECTRON BEAM ADDRESSABLE HIGH INFORMATION DENSITY MEMORY TUBE.
AD-A016 940

*ARMY ENGINEER TOPOGRAPHIC LABS FORT BELVOIR VA

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ETL-0003
A SYSTEM FOR TOPOGRAPHIC INQUIRY NO. 2 ALPHANUMERIC SUBSYSTEM.
AD-A008 012

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ETL-0004
A SYSTEM FOR TOPOGRAPHIC INQUIRY. NO. 3. ALPHANUMERIC SUBSYSTEM DATA BASE LISTING.
AD-A007 739

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ETL-ETR-74-2
A SYSTEM FOR TOPOGRAPHIC INQUIRY. NUMBER 1. MICROGRAPHIC SUBSYSTEM.
AD- 923 480

*ARMY FOREIGN SCIENCE AND TECHNOLOGY CENTER CHARLOTTESVILLE VA

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FSTC-HC-23-346-74
BRANCHED CORE LOGIC ELEMENTS,
AD- 786 842

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FSTC-HT-23-0458-74
CERTAIN PROBLEMS IN THE DEVELOPMENT OF PHOTOCHROMATIC DEVICES FOR INFORMATION STORAGE AND REPRODUCTION,
AD-A000 242

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FSTC-HT-23-1823-73
A BINARY OUTPUT ELEMENT FOR LOGICAL AND SWITCHING DEVICES ON FERROMAGNETIC SINGLE CRYSTALS,
AD-A000 226

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FSTC-HT-23-2015-72
PROBLEMS OF LASER BEAM DATA TRANSMISSION, PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV, SEPTEMBER 1968,
AD- 753 944

*ARMY MOBILITY EQUIPMENT RESEARCH AND DEVELOPMENT CENTER FORT BELVOIR VA

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USAMERDC-2033
SOURCE TEXT EDITOR FOR THE VARIAN DATA 620.
AD- 750 605

*ARMY RESEARCH OFFICE RESEARCH TRIANGLE PARK N C

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ARO-5718.14-EL
EXTRACTION OF DERIVATIVES FROM DATA STORED IN AN ACOUSTIC MEMORY,
AD-A019 059

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ARO-8803.15-EL
OPTIMAL CONTROL OF DEMAND-PAGING SYSTEMS,
AD-A011 800

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ARO-10197.7-EL
DISTINGUISHABLE CODEWORD SETS FOR SHARED MEMORY,
AD-A015 498

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AROD-8803.17-RT
AN INVESTIGATION OF COMPUTER SYSTEMS PROBLEMS.
AD- 779 452

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AROD-9187.6-A
COMPILER DESIGN FOR THE ILLIAC IV. VOLUME II.
AD- 748 226

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AROD-9187.8-A
COMPILER DESIGN FOR THE ILLIAC IV.
AD- 756 729

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AROD-9816:2-A
NETWORK DATA HANDLING SYSTEM.
AD- 757 686

*ASSISTANT SECRETARY OF DEFENSE (MANPOWER AND RESERVE AFFAIRS) WASHINGTON D C

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OSAD/MRA-CODAP-73
COMPREHENSIVE OCCUPATIONAL DATA ANALYSIS PROGRAM (CODAP),
AD- 773 233

*AUERBACH CORP PHILADELPHIA PA

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DM-1 IMPLEMENTATION.
(RADC-TR-73-68)
AD- 761 520

*AUTONETICS ANAHEIM CALIF

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C70-1144/501
SINGLE CRYSTAL CYLINDRICAL MAGNETIC DOMAIN MATERIALS FOR MEMORY APPLICATIONS.
(ECOM-0258-4-70)
AD- 763 224

*BALLISTIC RESEARCH LABS ABERDEEN PROVING GROUND MD

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BRL-1718
DYNAMIC STORAGE ALLOCATION FOR THE BRLESC II COMPUTER.
AD- 780 732

*BOLT BERANEK AND NEWMAN INC CAMBRIDGE MASS

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BBN-2184
TERMINAL INTERFACE MESSAGE PROCESSOR. THE BBN TIP HARDWARE MANUAL.
AD-A002 481

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BBN-2913
INTERFACE MESSAGE PROCESSORS FOR THE ARPA COMPUTER NETWORK.
AD-A000 556

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BBN-2930
PLURIBUS DOCUMENT 2: SYSTEM HANDBOOK.
AD-A021 864

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BBN-2988
INTERFACE MESSAGE PROCESSORS FOR THE ARPA COMPUTER NETWORK.
AD-A008 842

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BBN-2999
PLURIBUS DOCUMENT 1: OVERVIEW.
AD-A021 863

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BBN-3126
A MULTIPROCESSOR DESIGN.
AD-A018 341

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INTERFACE MESSAGE PROCESSORS FOR THE ARPA COMPUTER NETWORK.
AD-A020 480

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TECHNICAL INFORMATION-91
THE TERMINAL INTERFACE MESSAGE PROCESSOR PROGRAM.
AD-A025 888

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SCIENTIFIC-2
GRAPPAC: A PACKAGE OF FORTRAN SUBROUTINES FOR USE WITH THE 6000 SERIES 274 INTERACTIVE GRAPHICS SYSTEM OF THE CONTROL DATA CORPORATION.
(AFCRL-72-0698)
AD- 755 395

•BRITISH COLUMBIA UNIV VANCOUVER DEPT OF ELECTRICAL ENGINEERING

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PLASMA ANODIZATION.
(AFAL-TR-72-362)
AD- 760 171

•BROWN UNIV PROVIDENCE R I DIV OF APPLIED MATHEMATICS

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THE SUPER INTEGRAL MICROPROGRAMMED ARITHMETIC LOGIC EXPEDITER (SIMALE).
AD- 760 305

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THE OPTIMAL CHOICE OF WINDOW SIZES FOR WORKING SET DISPATCHING.
AD- 772 630

•BROWN UNIV PROVIDENCE R I CENTER FOR COMPUTER AND INFORMATION SCIENCES

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THE BROWN UNIVERSITY GRAPHICS SYSTEM(BUGS) OVERVIEW.
AD- 760 296

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AN INTERACTIVE SOFTWARE ENGINEERING TOOL FOR MEMORY MANAGEMENT AND USER PROGRAM EVALUATION.
AD- 771 284

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REGIME BEHAVIOR IN PAGE REFERENCING PATTERNS OF COMPUTER PROGRAMS.
AD- 787 031

•CALIFORNIA UNIV BERKELEY ELECTRONICS RESEARCH LAB

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A REVIEW AND PROJECTION OF SEMICONDUCTOR COMPONENTS FOR DIGITAL STORAGE.
(AFOSR-TR-76-0428)
AD-A023 387

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EXTRACTION OF DERIVATIVES FROM DATA STORED IN AN ACOUSTIC MEMORY.
(ARO-5718.14-EL)
AD-A019 059

•CALIFORNIA UNIV LOS ANGELES

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THE PAGE FAULT FREQUENCY REPLACEMENT ALGORITHM.
AD- 754 365

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UCLA-ENG-7418
MEASUREMENT AND MODELING OF PROGRAM BEHAVIOR AND ITS APPLICATIONS.
AD- 779 884

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(ECOM-73-0306-F)
AD-A018 213

•CALIFORNIA UNIV LOS ANGELES CALIF DEPT OF COMPUTER SCIENCE

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AD- 762 774

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(AFOSR-TR-74-0010)
AD- 772 415

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THE RENEWAL MODEL FOR PROGRAM BEHAVIOR.
AD-A014 758

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976-F
RESEARCH IN FERROMAGNETICS: DOMAIN TIP DEVICES.
(AFCRL-TR-73-0175)

[illegible]

•CARNEGIE-MELLON UNIV PITTSBURGH PA DEPT OF COMPUTER SCIENCE

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A MEMORY-PROCESS MODEL OF SYMBOLIC ASSIMILATION.
(AFOSR-TR-75-0132)
AD-A004 331

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THE OPTIMAL SELECTION OF SECONDARY INDICES FOR FILES.
(AFOSR-TR-75-0196)
AD-A005 692

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AD-A019 661

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AD-A020 051

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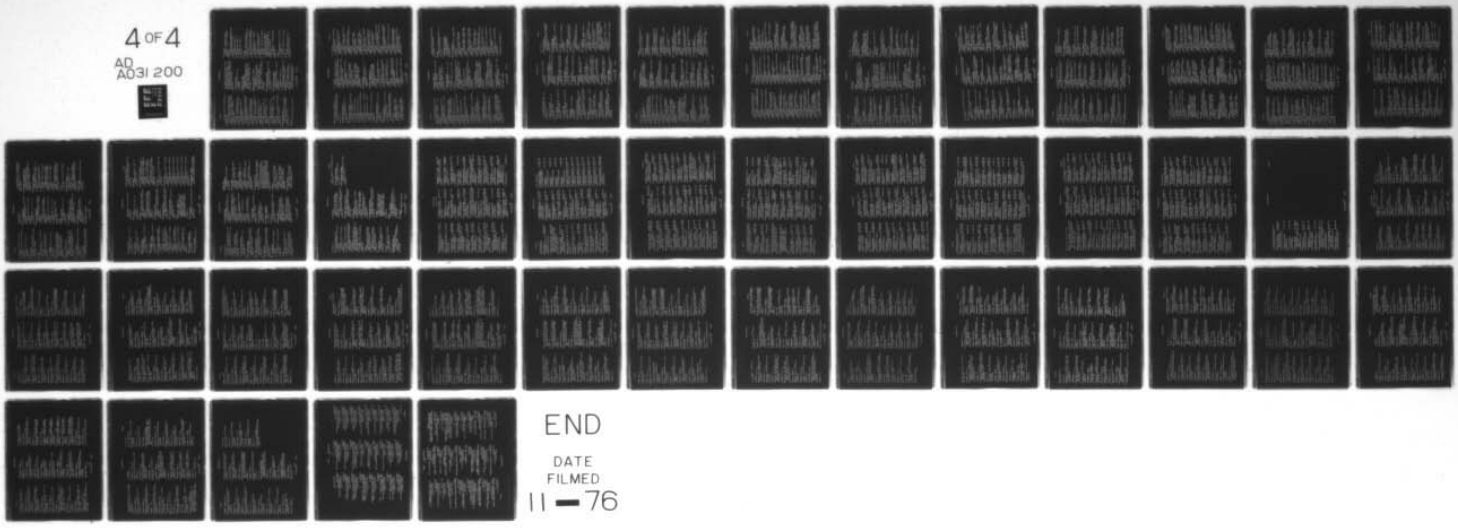
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