Authors

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Dr. Bahnsen is a senior engineer currently working in the area of automated logic design and verification in the Engineering Design System Department. He joined IBM in 1954 in Poughkeepsie. His previous experience at IBM included circuit and logical design. He received a B.S. in electrical engineering from the City College of New York in 1954. In 1960 he received an IBM Resident Study Fellowship and attended the Massachusetts Institute of Technology, where he received the Sc.D. degree in 1965. In 1978 he received an IBM Outstanding Innovation Award for his work on Boolean comparison. Dr. Bahnsen is a member of the Institute of Electrical and Electronics Engineers and Sigma Xi and is a registered professional engineer in the state of New York.

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Mr. Barbour is a senior engineer on the technical staff of the multilayer ceramic (MLC) project manager at East Fishkill. He joined IBM in 1964 at Poughkeepsie, New York, and has held various engineering and managerial positions in packaging development. In his prior assignment as process engineering manager, he was responsible for the development of the MLC technology. Mr. Barbour obtained his B.S. in mechanical engineering from Clarkson College of Technology, Potsdam, New York. He is a member of Pi Tau Sigma and Tau Beta Pi.

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Dr. Blodgett is currently manager of the manufacturing research laboratory located at the Thomas J. Watson Research Center. He joined IBM at Poughkeepsie, New York, in 1960. Dr. Blodgett has held various engineering and managerial positions in component development and manufacturing. In his prior assignment as manager of packaging engineering in East Fishkill, New York, he was responsible for the development of the multilayer ceramic technology and associated multichip module products. He received his B.E. in electrical engineering from Yale University, New Haven, Connecticut, in 1960 and, under an IBM Resident Study Fellowship, received his M.S. and Ph.D. in electrical engineering/solid state physics from Stanford University in 1963 and 1965. Dr. Blodgett is a member of the American Physical Society, the Institute of Electrical and Electronics Engineers, and Tau Beta Pi.

Douglas C. Bossen

Data Systems Division, Poughkeepsie, New York

Dr. Bossen is a senior engineer in Poughkeepsie, where he joined IBM in 1968. He works in the Laboratory Engineering Analysis Department, where he has general responsibility for advanced reliability techniques, including error correcting codes, error detection mechanisms, fault tolerance, and fault isolation techniques. He received the B.S., M.S., and Ph.D. degrees in electrical engineering, all from Northwestern University, Evanston, Illinois. Since joining IBM, he has received the Fourth Level Invention Achievement Award. Dr. Bossen is a member of Eta Kappa Nu, Sigma Xi, and Tau Beta Pi. In 1973, Dr. Bossen received honorable mention by Eta Kappa Nu as an Outstanding Young Electrical Engineer.

David D. Cheng

General Technology Division, Poughkeepsie, New York

Dr. Cheng is currently manager of verification application of the engineering design system at Poughkeepsie. He is responsible for the development of automated systems which can verify the correctness of computer logic design. He joined IBM in 1963 in the Poughkeepsie laboratory. He has been primarily involved in numerous projects in the design automation area, including design and development of test generation program, logic simulator, and static and dynamic analysis systems. Dr. Cheng received his Ph.D. in electrical engineering from Michigan State University in 1963. He was the recipient of an IBM Outstanding Innovation Award in 1976. Dr. Cheng is a member of Eta Kappa Nu and Tau Beta Pi.

Richard C. Chu

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Mr. Chu is a program manager in the Poughkeepsie development laboratory. He received his B.S. in mechanical engineering in 1956 from National Cheng-Kung University, Taiwan, and his M.S. from Purdue University, West Lafayette, Indiana, in 1960. Since joining IBM, Mr. Chu has been involved with large processors/systems development in the areas of thermal analysis, cooling system design, and product packaging, among others. He has held a variety of management assignments since 1966, including heat transfer technology manager, thermal technology laboratory manager, and product technology manager. Since 1979 he has been manager of the engineering laboratory, with responsibility for thermal engineering, EMC engineering, acoustics engineering, technology applications, and the design center. Mr. Chu has received seven Invention Achievement Awards and four IBM Outstanding Innovation Awards.

Robert Eugene Griscom

Data Systems Division, Poughkeepsie, New York

Mr. Griscom is an advisory engineer working on system design of maintenance and service support facility, with special interest in RAS characteristics. After joining IBM in 1964 in Poughkeepsie, he worked in diagnostic engineering from 1964 to 1966 and on System/370 Models 155 and 158 engineering from 1966 to 1974. He received his B.S. in physics in 1964 from Carnegie-Mellon University, Pittsburgh, Pennsylvania, and his M.S. in electrical engineering in 1970 from Syracuse University, New York. Mr. Griscom is a member of the Institute of Electrical and Electronics Engineers.

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Mr. Gustafson is a senior engineer and manager of the processor/system control design of the 3081 Processor Unit. He joined IBM in 1959 and had technical logic design responsibilities within the System/360 Model 91 Processor program. Following that, he worked on advanced high-performance processor designs, assuming his present position in 1975. He received a B.S. in electrical engineering in 1959 from Worcester Polytechnic Institute, Massachusetts.

Harry Halliwell

System Products Division, Hursley, England

Dr. Halliwell is a member of the technical planning group of the European Laboratories Computation Network (ELCN). He joined IBM at Hursley in 1967 as a member of the PL/I advanced development group and was on assignment to the Thomas J. Watson Research Center, Yorktown Heights, New York, from 1970 until he rejoined ELCN on his return to Hursley in 1973. Dr. Halliwell graduated in physics from Durham University, England, in 1964. He undertook research in elementary particle physics and received his Ph.D. from Durham University in 1968.

Robert B. Hitchcock, Sr.

General Technology Division, Endicott, New York

Mr. Hitchcock is an advisory programmer in the area of design automation. He joined IBM in 1961 and designed and developed automatic wire routing programs until 1966, when he became a member of the Design Automation Department in the Research Division. In 1975 he joined the Design Verification Advanced Development Department in Endicott. He received an IBM Outstanding Innovation Award for the timing analysis program in 1976. In 1961 he received his B.S. in physics from the Carnegie Institute of Technology, Pittsburgh, Pennsylvania. In 1972 he received his M.S. in applied mathematics from New York University, and he is currently completing the research for his doctorate at the State University of New York at Binghamton. Mr. Hitchcock is a member of the Association for Computing Machinery and the Institute of Electrical and Electronics Engineers Computer Society, and has held several positions on the Organizing Committee for the Design Automation Conferences sponsored by those organizations.

M. Y. (Ben) Hsiao

Data Systems Division, Poughkeepsie, New York

Dr. Hsiao is a senior technical staff member and manager of the Laboratory Engineering Analysis Department. His current professional interests include research and development in computer reliability, availability, serviceability, error-correcting codes, error detection, failure-isolation techniques, and system engineering analysis. He joined IBM in Poughkeepsie in the Advanced Reliability Technology Department in 1960. From 1965 to 1967 he was on educational leave to the University of Florida, after which he returned to IBM as advisory engineer in the Reliability and Diagnostic Engineering Department. In 1969, he was promoted to senior engineer and manager of the Reliability Technology Department. He assumed his present position in 1979. Dr. Hsiao received his B.S. in electrical engineering in 1956 from Taiwan University, Taipei, his M.S. in mathematics in 1960 from the University of Illinois, and his Ph.D. in electrical engineering in 1967 from the University of Florida. He has seven IBM Invention Achievement Awards and two IBM Outstanding Innovation Awards in the areas of error-correction codes, error detection, and failure-isolation techniques. Dr. Hsiao is a Fellow of the Institute of Electrical and Electronics Engineers.

Un Pah Hwang

Data Systems Division, Poughkeepsie, New York

Dr. Hwang is an advisory engineer in the heat transfer technology area. He received his B.S. in mechanical engineering from Chung Kung University, Taiwan, in 1958, and his M.S. and Ph.D. in mechanical engineering from Kansas State University in 1964 and 1967. Dr. Hwang joined IBM in 1966 at the Poughkeepsie laboratory and has since been engaged in heat transfer development. Dr. Hwang received an IBM Outstanding Innovation Award for his work on gas-encapsulated cooling modules (now TCM) and has received four Invention Achievement Awards.

Herbert C. Kammerer

Data Systems Division, Poughkeepsie, New York

Mr. Kammerer is a senior engineer and manager of the thermal engineering laboratory in the Poughkeepsie development laboratory. He joined IBM at Kingston, New York, in 1956 as a design engineer. He worked on several advanced packaging and low temperature cooling projects, subsequently transferring to the Components Division in 1961. His assignments in East Fishkill involved mechanical analysis of component designs and processes. From 1967 to 1974, he managed several areas responsible for reliability analysis and qualification of various device and module products in the component product assurance function. He then moved to the packaging development area and became manager of module engineering in 1976. He transferred to Poughkeepsie in 1979, becoming manager of system reliability engineering. He currently is responsible for developing high-performance cooling technologies and designs for Poughkeepsie product programs. Mr. Kammerer received his B.S. in mechanical engineering from Lehigh University, Bethlehem, Pennsylvania, in 1956.

M. Monachino

Data Systems Division, Poughkeepsie, New York

Mr. Monachino is senior engineering manager in charge of design verification, diagnostics, microcode integration and test, and software support for the 3081 program. After joining IBM in 1964 in Poughkeepsie, he worked as manufacturing representative to IBM World Trade on the System/360 Model 44, design manager of CPU hardware and microcode on the System/370 Model 155, and manager of the diagnostic and model room for the System/370 Model 158. He received a B.S. in physics in 1963, a B.S. in mathematics in 1963, and a B.S. in electrical engineering in 1964 from New York University.

Robert Lee Nasser

Data Systems Division, Poughkeepsie, New York

Mr. Nasser is an advisory engineer responsible for power/thermal control system aspects of large-processor systems. He joined IBM in 1969 as a junior engineer in Poughkeepsie. From 1969 to 1972, he worked on the microcode for the channels on the System/370 Models 155, 155-II, and 158. From 1972 to 1974, he was involved with the design of the service processor for the System/370 Model 158. Mr. Nasser spent 1974 to 1975 on assignment at the laboratory in Boeblingen, West Germany. Since 1975, he has been working on the design and implementation of the power/thermal control system for large-processor systems. He received a B.E. in electrical engineering from Manhattan College, Riverdale, New York, in 1967 and an M.E. in electrical engineering from Rensselaer Polytechnic Institute, Troy, New York, in 1969. Mr. Nasser is a member of Eta Kappa Nu and the Institute of Electrical and Electronics Engineers.

Sevgin Oktay

General Technology Division, East Fishkill, New York

Mr. Oktay is a senior engineer and manager of thermal technology at the East Fishkill development laboratory. He joined IBM in 1963 at the Thomas J. Watson Research Center, Yorktown Heights, New York, as a staff member in the experimental systems area. In 1965, he transferred to Poughkeepsie, New York, where he worked on heat transfer. He came to East Fishkill in 1967, where he managed areas involved in physical analysis, packaging reliability, and MLC products. Mr. Oktay received his B.S. in engineering science in 1959 from Antioch College, Yellow Springs, Ohio, and an M.S. and a professional M.E. in mechanical engineering in 1960 and 1963 from Columbia University, New York, where he was a Research Fellow from 1961 to 1962. Mr. Oktay is a member of the American Society of Mechanical Engineers and is a recipient of a Third Level IBM Invention Achievement Award.

Marvin S. Pittler

Data Systems Division, Poughkeepsie, New York

Mr. Pittler is division director of systems technology, assurance, and quality. He has division-wide responsibility for independent product assessment, plans and executes the comprehensive product test plan, and works with responsible development and manufacturing managers to ensure superior quality in design, development, and manufacturing as well as satisfactory product characteristics. He also has responsibility for product assurance concurrence and for the development and manufacturing technical staff, interacting with other divisions, the DP Product Group, and Corporate as needed, and he advises the division president on technical plans and issues. Mr. Pittler was formerly manager of engineering operations at the Poughkeepsie laboratory, where he managed engineering support functions for the development of large data processing systems. These functions included automated design and release systems, the design of special circuits, packaging and power systems, physical engineering, and reliability and performance evaluation. Prior to joining the Poughkeepsie laboratory in 1978, Mr. Pittler was manager of new logic products and general engineering at the East Fishkill laboratory, where he was responsible for the introduction of LSI circuits and packaging into manufacturing. He also has had managerial responsibility for other functions at East Fishkill, including manufacturing engineering, design and release engineering, and quality assurance. Prior to joining IBM in 1963, he was product manager with the General Instrument Corporation. He is a graduate of the Brooklyn Polytechnic Institute with a B.S. in electrical engineering. Mr. Pittler is a member of the American Society of Quality Control and the Institute of Electrical and Electronics Engineers.

Don Michael Powers

Data Systems Division, Poughkeepsie, New York

Mr. Powers is manager of processor development, responsible for large general-purpose processors. During the development of the IBM 3081, he was program manager responsible for development. He joined IBM in Poughkeepsie in 1959 as a junior engineer working on a special government project related to the Stretch program. Mr. Powers was responsible for development of the System 360/Model 91 Floating-Point Execution Unit. He has held several management and technical positions in large systems in Poughkeepsie. He received his B.S. in electrical engineering in 1959 from Virginia Polytechnic Institute. Mr. Powers is a member of Eta Kappa Nu, Phi Beta Phi, and Tau Beta Pi.

John J. Reilly

Data Systems Division, Poughkeepsie, New York

Mr. Reilly is a senior engineer and manager of large-processor maintenance/service architecture and design. After joining IBM in 1962, he worked on System/360 channel design, 1964 to 1968; on System/370 Model 158 service processor design, 1968 to 1973; and before his present position, processor controller development for the 3081 system, 1973 to 1979. Mr. Reilly received a B.S. in electrical engineering from the University of New Hampshire in 1962.

Dorothy L. Schnabel

Data Systems Division, Poughkeepsie, New York

Miss Schnabel is a senior engineer and technical assistant to the manager of engineering operations at the Poughkeepsie laboratory. She is currently responsible for directing technical publications for the System 3081 and coordinating technical strategies related to large-systems processor development. After joining IBM in Poughkeepsie in 1957, she worked in the logic and microprogram design of several processor products. From 1969 through 1977, she held managerial positions in performance evaluation with responsibility for performance measurement, measurement tool development, workload analysis and definition, and modeling. In 1978, she was on sabbatical leave at the IBM Systems Research Institute, where she specialized in performance-measurement tools and their applications. Miss Schnabel received a Bachelor of Electrical Engineering degree from the City College of New York in 1954 and a Master's degree in electrical engineering from Columbia University in 1957.

Prior to joining IBM, she was a lecturer in electrical engineering at the City College of New York. Miss Schnabel is a member of the Association for Computing Machinery and the Institute of Electrical and Electronics Engineers.

Donald P. Seraphim

General Technology Division, Endicott, New York

Dr. Seraphim is manager of the materials and process development for packaging, printers, and processors. He joined IBM in 1957 following graduation from Yale University, New Haven, Connecticut, with a Ph.D. in engineering in metallurgy. His B.S. and M.A. in applied science were awarded in 1951 and 1952 at the University of British Columbia, Vancouver, Canada. He has participated in management of component development for IBM systems beginning with MST chips and modules for the System/370 systems in 1965 in East Fishkill, New York. In 1970, he transferred to Endicott to manage packaging process development for the IBM 4300 and 3081 series. Dr. Seraphim has reached the second IBM invention plateau in filed and published invention disclosures. He was a member of the IBM Corporate Technical Committee in 1978 and 1979. He was made an IBM Fellow in 1981. He is a member of the American Institute of Mechanical Engineers and the American Physical Society.

Robert E. Simons

Data Systems Division, Poughkeepsie, New York

Mr. Simons is a senior engineer in the Poughkeepsie thermal engineering laboratory. He received his B.S. in mechanical engineering from Pennsylvania Military College in 1962. Prior to joining IBM at Poughkeepsie in 1966, he worked for the General Electric Company, King of Prussia, Pennsylvania, on the design and development of heat shields for ballistic re-entry vehicles and planetary probes. From 1966 to 1975, he was engaged in the development of direct liquid immersion cooling techniques and managed a heat transfer technology group in the Poughkeepsie laboratory from 1969 to 1975. Since then he has been engaged in the thermal development of the gas-encapsulated cooling module and the overall 3081 cooling system as manager of the thermal technology group, and then the thermal systems development group with the Poughkeepsie thermal laboratory. Mr. Simons is a co-inventor of the gas-encapsulated cooling module, for which he was a co-recipient of an Outstanding Innovation Award in 1978. He has received four IBM Invention Achievement Awards.

Gordon L. Smith

Data Systems Division, Poughkeepsie, New York

Mr. Smith is an advisory engineer in the advanced processor development group. He received a Bachelor of Engineering Physics degree in 1959 and a Master's degree in pure mathematics from the University of California at Berkeley in 1963. During his IBM career, he worked on development of the IBM Stretch system, the IBM System/360 Model 75, the IBM 3081, and EDS (an IBM design automation system). He has been given IBM Outstanding Innovation Awards for his work on timing analysis and Boolean comparison. Mr. Smith is a senior member of the Institute of Electrical and Electronics Engineers and is a licensed professional engineer.

Frank J. Sparacio

Data Systems Division, Poughkeepsie, New York

Mr. Sparacio joined IBM in 1956, after graduating from Rutgers University, New Brunswick, New Jersey, with a B.S. in electrical engineering with honors. His previous work was in the development of large processors: the IBM 7950 system—a government contract system shipped in 1961—and the IBM Model 91, shipped in 1967. Mr. Sparacio has been the program manager for the logic design of the Processor Unit of the 3081 since its beginning.

Arthur James Sutton

Data Systems Division, Poughkeepsie, New York

Mr. Sutton is a senior engineer and system designer of processor controller and microcode applications for processor controllers of large machines. He joined IBM in 1956 at Poughkeepsie and had technical and managerial responsibility within diagnostic engineering for the IBM 7000-series systems and System/360. From 1965 until he assumed his present position, he was manager of the On-line Test Executive Program (OLTEP) for OS/360 and DOS and System Environment Recording (SER). He received his B.S. in 1951 in mathematics from St. Lawrence University, Canton, New York, and his M.A. in 1956 in mathematics from Columbia University, New York. Mr. Sutton received a Second Level Invention Achievement Award in 1981.

Robert L. Swann

Data Systems Division, Poughkeepsie, New York

Mr. Swann is a development engineer and the manager of advanced processor development, engineering test. Mr. Swann is responsible for managing the bring-up and test of the advanced processors. He joined IBM as a junior engineer in 1971, doing logic design for System/370 Model 195. In 1975 he became manager of the advanced processor diagnostic strategy and architecture development for LSI. Mr. Swann joined the advanced processor test organization in 1978 and assumed his current responsibilities in 1979. Mr. Swann received the B.S. in electrical engineering from the University of Michigan in 1970, and was nominated for the Eta Kappa Nu Outstanding Young Electrical Engineer award in 1977. He received the M.S. in computers and information science from Syracuse University, New York, in 1980. At present, Mr. Swann is working toward a Master's degree in business administration.

Nandakumar N. Tendolkar

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Mr. Tendolkar is an advisory engineer in the Laboratory Engineering Analysis Department; he is currently involved in developing and evaluating diagnostic strategies for, and analyzing the reliability of, advanced processors. He joined IBM in 1967 at Endicott, New York. From 1967 to 1972, he worked in the area of application of operations research to planning and participated in designing the automated Material Distribution Center at Endicott. From 1972 to 1977, he worked at the Poughkeepsie laboratory on systems performance evaluations. From 1977 to 1980, he worked on developing and implementing the diagnostic strategy for the System 3081. Mr. Tendolkar received the B. Tech. (Hons.) degree in mechanical engineering from the Indian Institute of Technology, Bombay, India, in 1966, the M.S. degree in operations research from Cornell University, Ithaca, New York, in 1968, and the Master of Philosophy degree in computer and information science from Syracuse University, New York, in 1975. At present he is working for his Ph.D. at Syracuse University.