

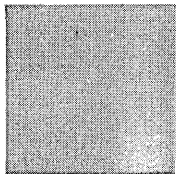
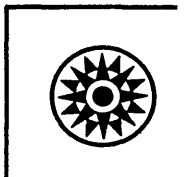
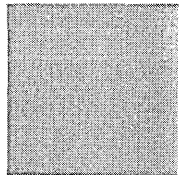
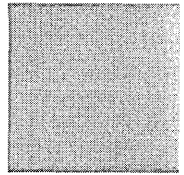
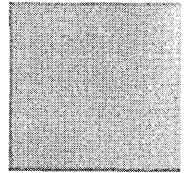
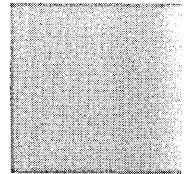
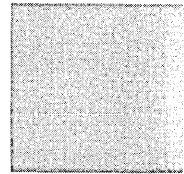
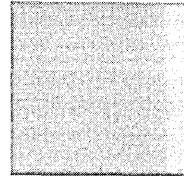
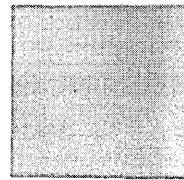
Systems Reference Library

IBM System/360 Bibliography

All available reference literature applicable to the installation and operation of any IBM System/360, except the Model 20, is indexed in this Bibliography. In Part 1, the publications are listed under major subject headings. In addition, subject headings 20 through 50 (Programming Systems Publications) are organized into Operating Systems or Basic Programming Support groups. It is recommended that this sequence be followed in putting together a library. Part 2 is a cross-index by machine type number. Part 3 provides abstracts of all publications in form-number sequence.

Publications relating to the Model 20 are indexed in the *IBM System/360 Model 20 Bibliography*, Form A26-3565. Another publication likely to be of interest to the System/360 user is the *IBM Teleprocessing Bibliography*, Form A24-3089.

Additional copies of most publications with form numbers can be ordered through local IBM representatives. Special ordering procedures are given in the abstracts.



Systems Reference Library

For each major IBM data processing system, a Systems Reference Library (SRL) has been established to consolidate all basic reference literature necessary in planning, programming, installing and operating the system. An SRL Bibliography Supplement covers publications for IBM Teleprocessing equipment.

Bibliography

The bibliography lists applicable publications and related materials in subject code and machine type number sequence and provides a brief abstract of each publication. By reviewing these indexes and abstracts you may select those items of interest to your installation and keep abreast of other materials which may be useful at some future time.

File Numbers, Subject Codes

The cover page of each SRL bulletin shows the title, abstract, form number, and a file number for the document. The file number identifies the system or component discussed and the general subject area.

For publications associated with one or two Libraries, the prefix of the file number is the system type (e.g., 1401/1460-, 7080-). When the publication is included in more than two Libraries, the component type (e.g., 1311-, 7330-) is used, if applicable. In other cases "GENL" (general) is used.

The suffix of the file number is the subject code which designates a general subject area and the suggested filing sequence. Code 15, for example, is used for all publications related to physical planning specifications; code 33 appears on all publications related to IBM sort and merge programs for the system. Application program documentation appears under subject code 60.

Installation supplies such as coding forms and physical planning templates are listed under subject code 80. Other publications of general interest to a system user are listed under the headings "Supplementary Information," "Student Texts," and "Education Literature."

ELEVENTH EDITION

This is a major revision of and obsoletes A22-6822-9 and all prior editions.

Requests for copies of IBM publications should be made to your IBM representative or to the IBM branch office serving your locality.

This manual has been prepared by the IBM Systems Development Division, Product Publications, Dept. B98, P.O. Box 390, Poughkeepsie, N.Y. 12602. Address comments concerning the manual to this address.

Technical Newsletters

To keep publications current, additions and other modifications are distributed as Technical Newsletters (TNL). These are identified in the masthead with the file number and form number of the publication to which they apply. All previously issued TNL's are also listed so that you may verify receipt of all changes.

SRL Newsletter

A special SRL Newsletter is issued periodically (every four weeks if changes have occurred during that period) to update the Bibliography. All current publications are listed in subject code sequence showing form number and title of the publication as well as the form number of applicable Technical Newsletters. Obsolete publications are listed separately with new references indicated. Abstracts of new publications are also given.

The form number revision suffix is shown so that you may verify your publications as current. In some cases more than one edition of a publication is current, since a reprint incorporating previously distributed replacement pages is given a new suffix. When this occurs, all current editions and applicable Technical Newsletters are listed in the SRL Newsletter.

SRL Revision Service

A direct mail revision service is available to IBM system users to supply Technical Newsletters and major revisions of publications for a library. For details concerning subscription procedures, see your local IBM representative.

IBM Programming Systems

SRL Newsletters also show the current status of programming systems available for a system. Additional data, including ordering instructions, for these and application programs are included in the Catalog of Programs listed under subject code 20.

Part 1—Library Subject Code Listing

This part of the Bibliography lists all current publications pertaining to any IBM System/360 except the Model 20. The subject code is indicated to assist in assembling the materials in a recommended sequence. Publications in the Systems Reference Library format show this code on the cover. See Part 3 of the Bibliography for abstracts of the publications listed.

SUBJECT CODE	FORM NUMBER
00 System/360 Systems Reference Library	
Bibliography	A22-6822
SRL Bibliography Supplement—Teleprocessing	A24-3089
Bibliography of Data Processing Techniques	F20-8172
System Summary	A22-6810
Model 30 Configurator	A24-3232
Model 40 Configurator	A22-6813
Model 44 Configurator	A22-6874
Model 50 Configurator	A22-6814
Model 65 Configurator	A22-6887
Model 75 Configurator	A22-6888
1827 Data Control Unit Configurator	A22-6872
Input/Output Configurator	A22-6823
Data Communications Configurator	A22-6824
01 Machine System	
Principles of Operation	A22-6821
Model 30 Functional Characteristics	A24-3231
Model 30 Channel Characteristics and Functional Evaluation ..	A24-3411
Model 30 Operator's Guide	A24-3373
Model 40 Functional Characteristics	A22-6881
Model 40 Operating Techniques	C20-1635
Model 44 Functional Characteristics	A22-6875
Model 50 Functional Characteristics	A22-6898
Model 50 Operating Procedures	A22-6908
Model 65 Functional Characteristics	A22-6884
Model 67 Functional Characteristics	A27-2719
Model 75 Functional Characteristics	A22-6889
Model 75 Operating Procedures	A22-6909
Model 91 Functional Characteristics	A22-6907
03 Input/Output	
1052 Printer Keyboard Model 7 with 2150 Console	A22-6877
1219 Reader Sorter—1419 Magnetic Character Reader	A24-1499
1231, 1232 Optical Mark Page Readers	A21-9012
1231 N1 Component Description and Operating Procedures	A21-9031
1285 Optical Reader—Component Description	A24-3256
1287 Optical Reader—Component Description and Operating Procedures	A21-9064
1403 Printer—Component Description	A24-3073

SUBJECT CODE	FORM NUMBER
1404 Printer	A24-1446
1412 Magnetic Character Reader Model 1	A24-1421
1418 and 1428 Print Quality Considerations	A24-1452
1418 Optical Character Reader and 1428 Alphameric Optical Reader	A24-1473
1419 Model 32 Attached to System/360 Model 30 or 40	A19-0023
1442 N1 and N2—Component Description and Operating Procedures	A21-9025
1443 Printer Models 1, 2, N1—1445 Printer Models 1, N1	A24-3120
1443 and 2203 Printers—Form-Design Considerations	A24-3488
1827 Data Control Unit with System/360— Summary Description	A22-6868
2250 Display Unit Model 1—Component Description	A27-2701
2250 Display Unit Model 2 and 2840 Display Control Model 1— Component Description	A27-2702
2250 Display Unit Model 3 and 2840 Display Control Model 2— Component Description	A27-2721
2260 Display Station, 2848 Display Control— Component Description	A27-2700
2501 Models B1 and B2—Component Description and Operating Procedures	A21-9026
2520 Model B1, B2, and B3—Component Description and Operating Procedures	A21-9027
2540 Component Description and Operating Procedures	A21-9033
2671 Paper Tape Reader	A24-3388
2821 Control Unit	A24-3312
05 Magnetic Tape Units and Controls	
2400 and 2816 Model 1—Component Description	A22-6866
7340 Hypertape Drive Model 3 with System/360	A22-6828
07 Direct Access Storage Units and Controls	
2301 Drum Storage, 2820 Storage Control— Component Description	A22-6895
2841 Storage Control Unit, 2302 Disk Storage Models 3 and 4, 2311 Disk Storage Drive, 2321 Data Cell Drive Model 1, and 2303 Drum Storage—Component Description	A26-5988
2314 Direct Access Storage Facility—Component Description ..	A26-3599
2301 Drum Storage, 2820 Storage Control Component Description	A22-6895
Data Cell Handling Guide (2321)	A26-3633
09 Teleprocessing Equipment	
1219 Reader Sorter Model 32 and 1419 Magnetic Character Reader Model 32	A19-0004
2701 Data Adapter Unit—Principles of Operation	A22-6864
2702 Transmission Control—Component Description	A22-6846
2703 Transmission Control—Component Description	A27-2703
2711 Line Adapter Unit—Component Description	A27-2704
2712 Remote Multiplexor	A24-3426
2741 Communications Terminal	A24-3415
2780 Data Transmission Terminal—Component Description ..	A27-3005
7772 Audio Response Unit Vocabulary	A27-2710
7772 Audio Response Unit	A27-2711

SUBJECT CODE	FORM NUMBER
13 Special and Custom Features	
Model 30—1401/1440/1460 Compatibility Feature	A24-3255
Model 30—1401/1440/1460 Compatibility Feature—Inverted Print Edit and Sterling Sub-Features	A19-0019
Model 30, 1620 Compatibility Feature	A24-3365
Model 40, Sum of Products Instruction—RPQ W12561	L22-6902
Model 40, Halfword Translate Instruction—RPQ W13462	L22-6903
Model 40, Table Address Chaining—RPQ W13518	L22-6904
Model 44, Data Acquisition Special Features	A22-6900
Model 44, Instruction Trap and Emulate—RPQ 888086	L22-6915
Models 50 and 65, 7074 Compatibility Feature	A27-2717
Model 65, 7080 Compatibility Feature	A27-2716
Model 65, 709/7040/7044/7090/7094 II Compatibility Feature ..	A27-2715
1050 Special Features Description ASCII Data Communication— RPQ Features F18589, 82027, 842028, and 842029	A21-9070
1241/1419 Magnetic Ink Character Recognition Readers— Batch Numbering Feature	A24-3342
2701 Data Adapter Unit and ASCII Autodin Adapter— RPQ F16124	C50-0001
2911 Manual Switching Unit Models 1, 2, and 5	L22-6871
2930 Model 1 Tape Intersystem Connecting Unit	L22-6890
2972 Line Control Unit Model 1	A26-5993
Channel-to-Channel Adapter—Special Feature	A22-6892
2937 Models 1, 2, and 3 Multiplier Summation Processor— RPQ 880626	L22-6901
15 Physical Planning Specifications	
Physical Planning General Information	F24-1052
System/360 Installation Manual—Physical Planning	C22-6820
2712 Remote Multiplexor	A24-3425
2740 Communications Terminal	A24-3423
2741 Communications Terminal	A24-3424
2780 Data Transmission Terminal Installation Manual— Physical Planning	A27-3007
19 Original Equipment Manufacturers' Information	
1403 Printer	A24-1431
1404 Printer Model 2	A24-3356
2301 Drum Storage	A26-5661
2303 Drum Storage	A26-5663
2311 Disk Storage Drive	A26-3567
2321 Data Cell Drive	A26-3574
2361 Core Storage	A22-6869
2400 Magnetic Tape Units	A22-6862
2701 Data Adapter Unit	A22-6844
7340 Hypertape Drive Model 3	A22-6861
7770 Model 3 and 7772 Audio Response Units	A27-2706
Input/Output Interface—Channel to Control Unit	A22-6843
Direct Control Feature	A22-6845
Power Control Interface	A22-6906

System/360 Programming Systems

Programming Systems publications (subject codes 20 through 60) are organized in Operating System or Basic Programming Support groups. The Operating Sys-

SUBJECT
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tem group consists of Operating System/360 (os), Basic Operating System (bos), Tape Operating System (tos), and Disk Operating System (dos). The letter abbreviations appear on the front cover of new publications and will appear on existing publications when they are next reprinted. Within each group, the publications are in subject code order. The subject code precedes each title. The codes and the subject headings they identify are:

20	Programming Systems— General	31	System Service Programs
21	Assembler	32	Utility Programs
24	COBOL	33	Sort/Merge
25	FORTRAN	35	Simulation, Emulation
28	Report Program Generator	36	Control Program
29	PL/I	37	Automatic Testing Programs
30	Input/Output Control System, Data Management	48	Miscellaneous Programs
		50	Systems Techniques
		60	Type II Application Programs

Programming Systems—General

20	Catalog of Programs for IBM System/360.....	C20-1619
24	Transition Aids—COBOL Language Conversion Program for the 1401	C28-6559
24	Transition Aids—COBOL Language Differences	C28-6570
25	Transition Aids—FORTRAN II Language Conversion Program for the 1401	C28-6560
28	Report Program Generator Translator.....	C26-5999
29	PL/I Subset Language Specifications.....	C28-6809
35	Model 30 Tape Overlap Emulator—Specifications and Operating Guide	C26-3564
35	Model 40 Emulator Program for 1401/1460 Data Processing Systems	C28-6561
35	Model 40 Emulator Program for 1410/7010 Data Processing Systems	C28-6563
35	Model 50 Emulator Program for 1410/7010 Data Processing Systems	C28-6568
35	Model 50/65 Emulator Program for 7074 Data Processing Systems	C27-6908
35	Model 65 Emulation of the 7040/7044 Data Processing Systems	C28-6585
35	Model 65 Emulator Program for 7080 Data Processing System..	C27-6911
35	Model 65 Emulator Program for 709/7090/7094/7094 II Data Processing Systems	C28-6565
35	Conversion Aids: Sample Problems for IBM System/360 Emulator Programs	C27-6929
35	Simulator for the 1410/7010—Preliminary Specifications	C28-6528
35	Simulator for 1620 Models 1 and 2—Preliminary Specifications	C28-6529
35	Simulator for the 7070/7074.....	C28-6530
35	Simulator for the 7080—Preliminary Specifications.....	C28-6531
35	7090/7094 Support Package	C28-6501
35	Simulator for the 7090/7094.....	C28-6532

Basic Programming Support (BPS)

20	Programming Systems Summary	C24-3420
20	Programmer's Guide (8K Tape)	C24-3354
20	Operating Guide—Basic Tape System (8K).....	C24-3391

SUBJECT CODE		FORM NUMBER
20	Basic Assembler and Basic Utilities Programs (Card)— Operating Guide	C28-6557
20	Basic Tape System—System Generation and Maintenance.....	C24-5061
21	Basic Assembler Language	C28-6503
21	Macro Definition Language (8K Tape).....	C24-3364
21	Assembler with Input/Output Macros (Tape).....	C24-3355
25	FORTTRAN IV Language	C28-6629
25	Specification—FORTTRAN IV (16K Card).....	C21-9040
25	FORTTRAN IV Programmer's Guide.....	C28-6583
25	FORTTRAN IV (16K Card)—Programmer's Guide	C21-5000
28	Specifications—Report Program Generator (Card).....	C24-3374
28	Report Program Generator Language Specifications (8K Tape)	C24-3418
28	Report Program Generator (Card)—Operating Guide	C24-3464
30	Specifications—Input/Output (1231 N1) Program.....	C24-3408
30	Operating Guide—Input/Output (1231 N1) Program	C24-3460
30	Specifications—Input/Output (1412/1419) Program	C24-3398
30	Specifications—Input/Output (1418/1428) Program	C24-3437
30	Operating Guide—Input/Output (1418/1428) Program.....	C24-5023
32	Specifications—Direct Access Storage Device Utility Programs	C24-3363
32	Specifications—Basic Utility Programs	C28-6505
32	Specifications—Card and Tape Utility Programs.....	C24-5026
32	Operating Guide—Universal Character-Set Utility Program...	C24-3396
32	Operating Guide—Direct Access Storage Device Utility Programs	C24-3392
32	Operating Guide—Card and Tape Utility Programs.....	C24-5027
33	Specifications—Sort/Merge (8K Tape) Programs	C24-3320
33	Operating Guide—Sort/Merge Programs (8K Tape).....	C24-3413
33	1401/1460 Timing Program for Sort/Merge Program.....	C24-3345
37	Specifications—Autotest (8K Tape)	C24-3343
37	Operating Guide—Autotest (8K Tape)	C24-3417
	Basic Operating System (BOS)	
20	Programming Index	C24-5041
20	Programming Systems Summary	C24-3420
20	Programmer's Guide	C24-3372
20	Operating Guide—Control Programs and Assembler.....	C24-3450
20	Operating Guide—Operator Messages	C24-5024
21	Assembler with Input/Output Macros.....	C24-3361
21	Macro Definition Language (8K Tape).....	C24-3364
28	Report Program Generator Language Specifications.....	C24-3387
28	Operating Guide—Report Program Generator.....	C24-3453
31	System Generation and Maintenance.....	C24-5060
32	Specifications—Utility Programs	C24-3409
32	Operating Guide—Utility Programs	C24-3455
33	1401/1460 Timing Program for Sort/Merge Program.....	C24-3377
33	Sort/Merge Program	C24-3321
33	Operating Guide—Sort/Merge Program.....	C24-3454
36	Operating Guide—1070 Process Communication Supervisor...	C26-3627
36	1070 Process Communication Supervisor.....	C26-5996
37	Specifications—Autotest.....	C24-3378
37	Operating Guide—Autotest	C24-3452
	Tape Operating System (TOS)	
20	Programming Index	C24-5064

SUBJECT CODE		FORM NUMBER
20	Programming Systems Summary	C24-3420
20	Concepts and Facilities (Includes Disk Operating System) . . .	C24-5030
20	Data Management Concepts	C24-3430
20	Performance Estimates	C24-5020
20	System Generation and Maintenance	C24-5015
20	Operating Guide	C24-5021
21	Language Specifications—Assembler (Includes Disk Operating System)	C24-3414
24	Specifications—COBOL Language (Includes Disk Operating System)	C24-3433
24	Programmer's Guide—COBOL (Includes Disk Operating System)	C24-5025
25	Basic FORTRAN IV Language	C28-6629
25	Programmer's Guide—FORTRAN IV (Includes Disk Operating System)	C24-5038
28	Report Program Generator (Includes Disk Operating System) . .	C26-3570
29	PL/I Programmer's Guide	C24-9005
30	Extended Supervisor and Input/Output Macros	C24-5035
32	Specifications—Utility Programs (Includes Disk Operating System)	C24-3465
32	Extended Utility Macros Specifications	C24-5042
33	Specifications—Sort/Merge Program	C24-3438
33	1401/1460 Timing Program for Tape Sort/Merge Program	C24-3439
36	Extended System Control and System Service Programs	C24-5034
37	Specifications—Autotest	C24-3441
	Disk Operating System (DOS)	
20	Programming Index	C24-5063
20	Programming Systems Summary	C24-3420
20	Concepts and Facilities(Includes Tape Operating System) . . .	C24-5030
20	Performance Estimates	C24-5032
20	Operating Guide	C24-5022
21	Language Specifications—Assembler (Includes Tape Operating System)	C24-3414
24	Specifications—COBOL Language (Includes Tape Operating System)	C24-3433
24	Programmer's Guide—COBOL (Includes Tape Operating System)	C24-5025
24	COBOL DASD Macros	C24-5039
25	Basic FORTRAN IV Language	C28-6629
25	Programmer's Guide—FORTRAN IV (Includes Tape Operating System)	C24-5038
28	Report Program Generator (Includes Tape Operating System) . .	C26-3570
29	PL/I Programmer's Guide	C24-9005
29	PL/I DASD Macros	C24-5059
30	Data Management Concepts	C24-3427
30	Extended Supervisor and Input/Output Macros	C24-5037
30	Extended Basic Telecommunications Access Method	C30-5001
30	Extended QTAM Message Control Program	C30-5002
30	Extended QTAM Message Processing Program Service	C30-5003
30	QTAM Message Control Program (Specifications for a Future Version)	C30-5004
31	System Generation and Maintenance	C24-5033

SUBJECT CODE		FORM NUMBER
32	Specifications—Utility Programs (Includes Tape Operating System)	C24-3465
32	Extended Utility Macros Specifications	C24-5042
32	Vocabulary File Utility Program for the IBM 7772 Audio Response Unit—Preliminary Specifications	C27-6924
33	Tape Sort/Merge Program Specifications	C24-3438
33	Specifications—Sort/Merge Program	C24-3444
33	1401/1460 Timing Program for Disk Sort/Merge Program	C24-3439
33	1401/1460 Timing Program for Sort/Merge Program	C24-3445
36	Extended System Control and System Service Programs	C24-5036
37	Autotest Specifications	C24-5062
	Operating System (OS)	
20	Master Index	C28-6644
20	Operating System Introduction	C28-6534
20	System Programmer's Guide	C28-6550
20	Concepts and Facilities	C28-6535
20	Storage Estimates	C28-6551
20	Starter Operating System Guide	C28-6630
20	Operator's Guide	C28-6540
20	Messages, Completion Codes and Storage Dumps	C28-6631
21	Assembler Language	C28-6514
21	Assembler (E) Programmer's Guide	C28-6595
21	Assembler (E and F) Programmer's Guide	C26-3756
24	COBOL Language	C28-6516
24	COBOL (E) Programmer's Guide	C24-5029
24	COBOL (F) Programmer's Guide	C28-6380
25	Basic FORTRAN IV Language	C28-6629
25	FORTTRAN IV Language	C28-6515
25	FORTTRAN IV (E) Programmer's Guide	C28-6603
25	FORTTRAN IV (G) Programmer's Guide	C28-6639
25	FORTTRAN IV (H) Programmer's Guide	C28-6602
25	Graphic Programming Services for FORTRAN IV	C27-6932
25	FORTTRAN IV (E) Library Subprograms	C28-6596
26	ALGOL Language	C28-6615
26	ALGOL Programmer's Guide	C33-4000
28	Report Program Generator Language	C24-3337
29	PL/I Language Specifications	C28-6571
29	PL/I Subroutine Library Computational Subroutines	C28-6590
29	PL/I (F) Programmer's Guide	C28-6594
30	Graphic Programming Services for 2250 Display Unit— Preliminary Specifications	C27-6909
30	Graphic Programming Services for 2260 Display Station (Local Attachment)	C27-6912
30	Graphic Programming Services for IBM 2280 and 2282 Film Units—Preliminary Specifications	C27-6927
30	Queued Telecommunications Access Method Message Control Program	C30-2002
30	Queued Telecommunications Access Method Message Processing Program Services	C30-2003
30	Basic Telecommunications Access Method Version II	C30-2004
30	Queued Telecommunications Access Method Message Control Program—Specifications for a Future Version	C30-2005

SUBJECT CODE		FORM NUMBER
31	Maintenance Program	C27-6918
31	Linkage Editor	C28-6538
31	System Generation	C28-6554
31	Checkpoint/Restart	C28-6656
32	Utilities	C28-6586
33	Sort/Merge Program	C28-6543
36	Option 2: Multiprogramming with a Fixed Number of Tasks— Concepts and Considerations	C27-6926
36	Job Control Language	C28-6539
36	Job Control Language Charts	C28-6632
36	System Control Blocks	C28-6628
36	Supervisor and Data Management Services	C28-6646
36	Supervisor and Data Management Macro-Instructions	C28-6647
37	TESTRAN	C28-6648
37	TESTRAN User's Guide	C20-1652
	Time Sharing System (TSS)	
20	Concepts and Facilities	C28-2003
21	Assembler Language	C28-2000
25	IBM FORTRAN IV	C28-2007
31	Linkage Editor	C28-2005
36	Command Language User's Guide	C28-2001
36	Command Language for Administrators and Operators	C28-2002
36	Assembler User Macro-Instructions	C28-2004
36	Terminal User's Guide	C28-2017
	Model 44 Programming System (44PS)	
21	Assembler Language	C28-6811
25	Guide to System Use for FORTRAN Programmers	C28-6813
36	Concepts and Facilities	C28-6810
36	Supervisor Call (svc) Functions	C28-6812
36	Systems Programmer's Guide	C28-6814
36	Operator's Guide	C28-6815
50	Systems Techniques	
	Programming Techniques	C20-1620
	Storage Utilization Techniques Applied to a Data Reduction Application	C20-1621
	Utility of 32-bit Word for the Scientific User	C20-1628
	QTAM User's Guide—Message Control Task Specification	C20-1640
	System Generation Configurator	C20-1660
	Utilities User's Guide	C20-1661
	User Libraries	C20-1663
	Random Number Generation and Testing	C20-8011
	Form and Card Design	C20-8078
	Flowcharting Techniques	C20-8152
	Summary of System/360 Transition Aids	F20-0009
60	Application Programs	
	Advanced Life Information System—Application Description ..	H20-0126
	APT Numerical Control Processor—Operator's Manual	H20-0331
	APT Numerical Control Processor—Part Programming Manual ..	H20-0309
	APT Numerical Control Processor—System Manual	Y20-0080
	Attached Support Processor System (ASP)—Application Programmer's Manual	H20-0322

SUBJECT CODE	FORM NUMBER
Attached Support Processor System (ASP)—System Description	H20-0223
Attached Support Processor System (ASP)— Console Operator's Manual	H20-0321
Attached Support Processor System (ASP)— System Programmer's Manual	H20-0323
Attached Support Processor System (ASP)—System Manual	Y20-0069
1400 Autocoder to COBOL Conversion Aid Program— Application Description Manual	H20-0352
1400 Autocoder to COBOL Conversion Aid Program— Operator's Manual	Y20-0106
1400 Autocoder to COBOL Conversion Program— Programmer's Manual	Y20-0105
Bill of Material Processor—Application Description	H20-0197
Bill of Material Processor—Operator's Manual	H20-0254
Bill of Material Processor—Programmer's Manual	H20-0246
Bill of Material Processor Version 2—System Manual	Y20-0099
COBOL Edit on the 1401—Program Reference Manual	H20-0217
Communications Control Application Program— Application Description	H20-0165
Communications Control Application Program— Operator's Manual	H20-0245
Communications Control Application Program— Programmer's Manual	H20-0244
Continuous System Modeling Program— Application Description	H20-0240
Continuous System Modeling Program—Operator's Manual	H20-0368
Continuous System Modeling Program—System Manual	Y20-0111
Continuous System Modeling Program—User's Manual	H20-0367
Data Conversion and Label Processing Subroutines, Version 2—Program Reference Manual	H20-0319
Data Conversion Utilities—Application Description	H20-0194
Data Conversion Utility I—Operator's Manual	H20-0233
Data Conversion Utility I—Programmer's Manual	H20-0232
Data Conversion Utility II Sequential Direct Access Indexed Version 3—Operator's Manual	H20-0314
Data Conversion Utility II Sequential Direct Access Indexed Sequential Version 3—Programmer's Manual	H20-0313
Data Conversion Utilities II Sequential Direct Access Version 2—System Manual	Y20-0067
Data Conversion Utility III, Version 2—Operator's Manual	H20-0286
Data Conversion Utility III—Programmer's Manual	H20-0258
Data Conversion Utility III, Version 2—Programmer's Manual	H20-0285
Data Conversion Utility III, Version 2—System Manual	Y20-0042
Demand Deposit Accounting—Application Description	E20-0246
Demand Deposit Accounting—Operator's Manual	H20-0262
Demand Deposit Accounting—Programmer's Manual	H20-0263
Flowchart—Application Description	H20-0199
Flowchart—Operator's Manual	H20-0294
Flowchart—System Manual	Y20-0062
Flowchart—User's Manual	H20-0293
Generalized Information System—Application Description	E20-0179
General Purpose Simulation—Application Description	H20-0186

SUBJECT CODE	FORM NUMBER
General Purpose Simulation Disk Operating System— Operator's Manual	H20-0327
General Purpose Simulation Introductory—User's Manual	H20-0304
General Purpose Simulation Operating System— Operator's Manual	H20-0311
General Purpose Simulation—System Manual	Y20-0075
General Purpose Simulation—User's Manual	H20-0326
Mathematical Programming System—Application Description	H20-0136
Mathematical Programming System Control Language— User's Manual	H20-0290
Mathematical Programming, Linear Programming— System Manual	Y20-0065
Mathematical Programming System Linear Programming— User's Manual	H20-0291
Medical Information System Programs— Application Description	H20-0182
Mortgage Loan Program—Application Description	E20-0196
N/C 360 AD-APT Application Description	H20-0180
N/C 360 APT Application Description	H20-0181
N/C 360 AUTOSPOT Application Description	H20-0179
Online Teller Program—Application Description	H20-0149
Online Teller Program, 32K Capability—Operator's Manual	H20-0325
Online Teller Program, 32K Capability—Programmer's Manual	H20-0305
Optimum Bond Bidding—User's Manual	E20-0228
Product Structure Retrieval Program	H20-0329
Product Structure Retrieval Program—Operator's Manual	H20-0370
Product Structure Retrieval Program—Programmer's Manual	H20-0369
Product Structure Retrieval Program—System Manual	Y20-0112
Project Control System—Application Description	H20-0222
Project Management System—Application Description	H20-0210
Project Management Cost Processor—System Manual	Y20-0084
Project Management Network Processor—System Manual	Y20-0083
Project Management Report Processor—System Manual	Y20-0085
Project Management—User's Manual	H20-0344
Remote Access Computing System (RAX) for the System/360— Application Description	H20-0353
Remote Access Computing System (RAX)—Operator's Manual	H20-0355
Remote Access Computing System (RAX)—System Manual	Y20-0101
Remote Access Computing System (RAX)—User's Manual	H20-0354
Retail IMPACT—Inventory Management and Control Techniques—Application Description	E20-0188
Scientific Subroutine Package—Application Description	H20-0166
Scientific Subroutine Package—Programmer's Manual	H20-0205
Scientific Subroutine Package Version II—System Manual	Y20-0092
Shared Hospital Accounting System (SHAS)— Application Description	H20-0302
Structural Engineering System Solver (STRESS)	H20-0340
Student Scheduling System—Application Description	H20-0202
Student Scheduling System—The Scheduler Program— User's Manual	H20-0239
Student Scheduling System—The Tally and Conflict Matrix Programs—User's Manual	H20-0220

SUBJECT CODE	FORM NUMBER
Synchronous Transmit-Receive Access Method for DOS/360— Application Description	H20-0243
Synchronous Transmit-Receive Access Method for DOS/360— Operator's Manual	H20-0347
Synchronous Transmit-Receive Access Method for DOS/360— System Manual	Y20-0096
Synchronous Transmit-Receive Access Method for DOS/360— User's Manual	H20-0346
Synchronous Transmit-Receive Access Method for OS/360— Application Description	H20-0242
Synchronous Transmit-Receive Access Method for OS/360— Operator's Manual	H20-0350
Synchronous Transmit-Receive Access Method for OS/360— System Manual	Y20-0097
Synchronous Transmit-Receive Access Method for OS/360— User's Manual	H20-0349
TEXT Processor—Composition—Application Description	E20-0256
Test/360—Programmer's Manual	Y20-0070
Wholesale IMPACT Program Library—Application Description	H20-0173
Wholesale IMPACT Program Library—Operator's Manual	H20-0256
Wholesale IMPACT Program Library—User's Manual	H20-0255

Program Logic Manuals

The publications listed below are not required for normal use or operation of the program described. They are intended for use by persons involved in program maintenance or alteration of program design, and distribution is restricted to such individuals.

Programming System—General	
24	COBOL Language Conversion Program for 1401
25	FORTRAN II Language Conversion Program for 1401
28	Report Program Generator Translator
35	1620 Emulator Program for Model 30
35	1401/1460 Emulator Program for Model 40
35	1410/7010 Emulator Program for Model 40
35	1410/7010 Emulator Program for Model 50
35	7074 Emulator Program for Models 50 and 65
35	7080 Emulator Program for Model 65
35	7040/7044 Emulator Program for Model 65
35	709/7090/7094/7094II Emulator Program for Model 65
35	1410/7010 Simulator for System/360
35	1620 Simulator for System/360
35	7070/7074 Simulator for System/360
35	7080 Simulator for System/360
35	7090/7094 Simulator for System/360
Basic Programming Support (BPS)	
20	Input/Output Control Program
21	Tape Assembler Program
21	Basic Assembler
25	FORTRAN IV (16K Card)
25	FORTRAN IV

SUBJECT CODE		FORM NUMBER
28	Report Program Generator (8K Tape)	Y24-5028
30	Basic Tape System (System Control and iocs)	Y24-5010
32	Universal Character Set Utility	Y24-5013
32	Basic Utilities	Y24-5015
33	Tape Sort/Merge	Y24-5008
37	Tape Autotest	Y24-5011
Basic Operating System (BOS)		
21	Assembler	Y24-5000
28	Report Program Generator	Y24-5005
30	System Control	Y24-5002
30	Logical Input/Output Control System	Y24-5003
33	Sort/Merge	Y24-5001
36	1070 Process Communication Supervisor	Y24-5006
37	Autotest	Y24-5004
Tape Operating System (TOS)		
21	Assembler	Y26-3642
24	COBOL-D with DASD Macros	Y24-5025
25	FORTTRAN IV	Y24-5032
28	Report Program Generator	Y26-3701
29	PL/I Subset Library Routines	Y33-9013
32	Logical Input/Output Control System	Y24-5018
32	Utility Programs	Y24-5019
32	Utility Macros	Y24-5045
33	Sort/Merge	Y24-5016
36	System Control	Y24-5022
37	Autotest	Y24-5026
Disk Operating System (DOS)		
21	Assembler	Y26-3642
24	COBOL-D with DASD Macros	Y24-5025
25	FORTTRAN IV	Y24-5032
28	Report Program Generator	Y26-3071
29	PL/I Subset Library Routines	Y33-9013
30	System Control	Y24-5017
30	Logical Input/Output Control System	Y24-5020
30	Basic Telecommunications Access Method	Y30-5001
30	Queued Telecommunications Access Method	Y30-5002
32	Utilities	Y24-5023
32	Utility Macros	Y24-5045
32	Vocabulary File Utility Program for the 7772 Audio Response Unit	Y27-7136
33	Sort/Merge	Y24-5021
37	Autotest	Y24-5027
Operating System (OS)		
21	Assembler (32K)	Y26-3598
21	Assembler (64K)	Y26-3700
24	COBOL-E	Y24-5009
24	COBOL (F)	Y28-6382

SUBJECT CODE		FORM NUMBER
25	FORTRAN IV (E)	Y28-6601
25	FORTRAN IV (G) Compiler	Y28-6638
25	FORTRAN IV (H) Compiler	Y28-6642
28	Report Program Generator	Y26-3704
29	PL/I (F) Compiler	Y28-6800
29	PL/I Subroutine Library	Y28-6801
30	Graphics Problem Oriented Routines	Y27-7110
30	Graphics Access Method	Y27-7113
30	Control Program with Option 2	Y27-7128
30	Sequential Access Methods	Y28-6604
30	Catalog Management	Y28-6606
30	Direct Access Device Space Management	Y28-6607
30	Input/Output Support (OPEN/CLOSE/EOV)	Y28-6609
30	Input/Output Supervisor	Y28-6616
30	Basic Direct Access Method	Y28-6617
30	Indexed Sequential Access Methods	Y28-6618
30	Basic Telecommunications Access Method	Y30-2001
30	Queued Telecommunications Access Method	Y30-2002
31	Linkage Editor	Y28-6610
32	Utilities Program	Y28-6614
32	Update Analysis Program	Y28-7106
33	Sort/Merge	Y28-6597
36	Introduction to Control	Y28-6605
36	Fixed-Task Supervisor	Y28-6612
36	Job Management	Y28-6613
36	MVT Control Program Logic Summary	Y28-6658
36	MVT Supervisor	Y28-6659
36	MVT Job Management	Y28-6660
36	Initial Program Loader and Nucleus Initialization Program	Y28-6661
37	TESTRAN	Y28-6611
	Model 44 Programming System (44PS)	
21	Assembler	Y28-6811
25	FORTRAN IV Compiler	Y28-6815
31	Linkage Editor	Y28-6813
32	Utilities and Stand-alone Programs	Y28-6814
36	Supervisor and Job Control	Y28-6812
80	Installation Supplies	
	Proportional Record Layout Format Forms	X20-1702
	System/360 Record Layout Worksheet	X20-1711
	System/360 Character Sets	X20-1719
	Assembler Language Data Management Macro Instructions	X20-1733
	Assembler Language Supervisor Macro-Instruction Reference Data	X20-1738
	Linkage Editor Reference Data	X20-1739
	PL/I Reference Data	X20-1744
	1287 Optical Reader Document Tracing Guide	X20-1741
	Share Print Chart	X20-1747
	General Purpose Card Punching Form	X20-8030
	Unit Record Input/Output Template	X22-6834
	Hypertape Template	X22-6835
	Magnetic Tape Record Characteristics	X22-6837
	Hypertape Capacity and Timing	X22-6840

SUBJECT CODE	FORM NUMBER
Magnetic Tape Template.....	X22-6855
Processor Template.....	X22-6856
Communication Equipment Template.....	X22-6857
Data Storage Template.....	X22-6858
Consoles and Terminals Template.....	X22-6859
Magnetic and Optical Character Readers Template.....	X22-6860
Processors Template—Models 30 and 40.....	X22-6894
Processor Template—Model 67.....	X22-6905
Report Program Generator—File Description Sheet.....	X24-3347
Report Program Generator—File Extension Sheet.....	X24-3348
Report Program Generator—Line Counter Specification Sheet.....	X24-3349
Report Program Generator—Input Specification Sheet.....	X24-3350
Report Program Generator—Calculation Specification Sheet.....	X24-3351
Report Program Generator—Output-Format Specification Sheet.....	X24-3352
Keytabs for 1052—Model 30.....	X24-3376
2702 Worksheet—Model 30.....	X24-3406
Multiplexor Channel Worksheet.....	X24-3407
1445 Printer Spacing Chart.....	X24-3448
Compatibility Initialization Deck Coding Sheet.....	X24-3477
Assembler Coding Form DTFSR Entries Tape.....	X24-5045
Coding Form DTFSR Entries Card Read-Punch.....	X24-5046
Coding Form DTFSR Entries Printer and Print Keyboard.....	X24-5047
Coding Form DTFSR Entries Disk.....	X24-5048
Coding Form DTFDA Entries.....	X24-5049
Coding Form DTFIS Entries.....	X24-5050
Coding Form DTFSD Entries.....	X24-5051
Coding Form DTFMT Entries.....	X24-5052
Coding Form DTFCB Entries.....	X24-5053
Coding Form DTFCN Entries.....	X24-5054
Coding Form PRMOD Entries.....	X24-5055
ISMOD Entries.....	X24-5056
SDMODXX Entries.....	X24-5057
Process I/O Devices Template.....	X26-5508
Report Program Generator Indicator Summary.....	X26-5590
2250 Display Layout Sheet.....	X27-2950
COBOL Program Sheet.....	X28-1464
FORTTRAN IV Reference Data.....	X28-6383
Assembler Short Coding Form.....	X28-6506
Assembler Long Coding Form.....	X28-6507
Assembler Coding Form.....	X28-6509
Model 44 Programming System Formats for Machine Check Interruption Diagnostics.....	X28-6812
FORTTRAN Coding Form.....	X28-7327
 85 Reference Cards	
Reference Data Card.....	X20-1703
2321 Data Cell Drive.....	X20-1704
2311 Disk Storage Drive.....	X20-1705
2302 Disk Storage Drive.....	X20-1706
Basic Utilities.....	X20-1709
2314 Direct Access Storage Facility Capacity and Transmission Time.....	X20-1710

SUBJECT CODE	FORM NUMBER
2301 Drum Storage Capacity and Transmission Time	X20-1717
2303 Drum Storage	X20-1718
os/360 Data Management	X20-1733
os/360 Job Control Language	X20-1746
DOS/TOS Job Control Language and Operator Communication . .	X20-1748
PL/I Reference Card for TOS/DOS	X20-1749
90 Education Literature	
Course Selection Guide—Course Description	R20-1055
COBOL Coding Course Description	R20-9064
PL/I Coding—Course Description	R20-9100
FORTRAN IV Programmed Instruction—Course Description	R20-9105
Operation Planning—Course Description	R20-9106
System/360 Introduction—Course Description	R20-9107
Basic Operating System (16K Disk/Tape)— Course Description	R20-9113
Basic Programming Support Coding (8K Tape)— Course Description	R20-9116
Basic Operating System Coding (8K Disk)—Course Description	R20-9117
Operating System Coding—Course Description	R20-9118
Assembler Language Coding—Course Description	R20-9120
Report Program Generator Program Coding— Course Description	R20-9121
Customer Executive Seminar—Course Description	R20-9128
Macro Writing Course—Course Description	R20-9135
Operating System Generation—Course Description	R20-9136
Operating System Workshop—Course Description	R20-9148
COBOL Program Fundamentals—Course Description	R20-9150
Writing Problems in COBOL—Course Description	R20-9151
COBOL Programming Techniques—Course Description	R20-9152
Disk Operating System Communication Coding— BTAM—Course Description	R20-9154
Assembler Language Coding Programmed Instruction— Course Description	R20-9165
Report Program Generator Coding (Card System)— Course Description	R20-9168
Report Program Generator Coding (Tape System)— Course Description	R20-9169
Report Program Generator Coding (Disk System)— Course Description	R20-9170
Assembler Language Coding Workshop—Course Description . .	R20-9171
Operating System STRAM—Course Description	R20-9188
Disk Operating System Synchronous Transmit Receive Access Method—Course Description	R20-9189
Basic Operating System Synchronous Transmit Received— Course Description	R20-9201
Synchronous Transmit Received Devices and Concepts— Course Description	R20-9202
95 Student Text	
Number System	C20-1618
A Guide to Program Language/One for FORTRAN Users	C20-1637

SUBJECT CODE	FORM NUMBER
A Programmer's Introduction to System/360 Architecture, Instructions, and Assembly Language	C20-1646
Introduction to System/360 Direct Access Storage Devices and Organization Methods	C20-1649
A Guide to PL/I for Commercial Programmers	C20-1651
Introduction to IBM System/360 Architecture	C20-1667
Model 30 Disk Operating System—Operation Training	C20-1676
Model 30 Operating System—Operation Training	C20-1677
Model 40 Disk Operating System—System Operating Training Manual	C20-1678
A PL/I Primer	C20-6808
99 Other Supplementary Information	
System/360 Model 30 1401 Compatibility Mode— Operator's Manual	C20-1650
Introduction to IBM Data Processing Systems	F22-6517

Part 2—Machine Index

Publications describing the machine components of the System/360, except those of the Model 20, are listed by machine number. The machine index is useful for quickly finding reference material about a specific machine unit. The *IBM System/360 System Summary*, Form A22-6810, which contains general information about the machine components, is not listed in the index. See *IBM System/360 Configurators*, Form Numbers A22-6813, A22-6814, A22-6874, A22-6887, A22-6888 and A24-3232 for the number and type of components.

Refer to *IBM System/360 Model 20 Bibliography*, Form A26-3565, for comparable information regarding the Model 20.

MACHINE NUMBER	FORM NUMBER	MACHINE NUMBER	FORM NUMBER	MACHINE NUMBER	FORM NUMBER
1015	A24-3239	1403	A19-0019	2302	A26-5988
1016	A24-3239		A24-3073	2303	A26-5988
1030	C26-5996		A24-3255	2311	A26-5988
1050	A24-3373		C28-6560	2311	A26-5860
	A26-5989	1404	A24-1446	2314	A26-3599
	C26-5996	1412	A24-1421	2321	A26-3633
1051	A24-3089		C24-3398		A26-5988
1052	A22-6877	1418	A24-1452	2400	A22-6866
	C26-5996		A24-1473	2501	A21-9026
1053	A26-5780	1419	A24-1499	2520	A21-9027
	A26-5989		A24-3342	2540	A21-9033
	C26-5996		C24-3398	2671	A24-3388
1070	A26-5989	1428	A24-1452	2701	A22-6864
	A26-5780		A24-1473		C26-5996
	C26-5996	1442	A19-0019	2702	A22-6846
1071	A26-5780		A21-9025		C26-5996
	A26-5989		A24-3255	2703	A27-2703
1072	A26-5780		C28-6557	2711	A27-2704
	A26-5989	1443	A19-0019	2712	A24-3426
1073	A26-5780		A24-3120	2741	A24-3415
	A26-5989		A24-3255	2802	A22-6828
1074	A26-5780		A24-3488	2803	A22-6866
	A26-5989	1445	A24-3120	2804	A22-6866
1075	A26-5780	1827	A22-6868	2816	A22-6866
	A26-5989	1828	A22-6868	2820	A22-6895
1076	A26-5780	1851	A22-6868	2821	A24-3312
	A26-5989	2150	A22-6877	2822	A24-3388
1078	A26-5989	2203	A24-3488	2840	A27-2702
1219	A24-1499	2250	A22-6851	2841	A26-5988
1231	A21-9012		A27-2701	2844	A26-3599
	A21-9031		A27-2702	2848	A27-2700
1232	A21-9012		A27-2721	2930	L22-6890
1241	A24-3342	2260	A27-2700	2972	A26-5993
1285	A24-3256	2280	A22-6853	7320	A26-5988
1287	A21-9064	2281	A22-6853	7340	A22-6828
1311	A19-0019	2282	A22-6853	7770	A27-2712
	A24-3255	2301	A22-6895	7772	A27-2710
					A27-2711

Part 3—Abstracts

The abstracts for all System/360 publications and materials, except those pertaining to the Model 20, are listed by form number. From the abstract, the System/360 user can determine if a particular publication is applicable. The subject code number is shown at the right of the title.

A19-0004 IBM 1219 Reader Sorter Model 32 09 **IBM 1419 Magnetic Character Reader** **Model 32; For IBM World Trade Use Only**

This publication contains detailed information about the keys, lights, switches, mechanical features, and special features of the IBM 1219 Reader Sorter Model 32 and the IBM 1419 Magnetic Character Reader Model 32.

On-line and off-line data-flow and operating theory are fully discussed, with step-by-step procedures for each reader operation. Programming notes and error-correction routines are also covered in detail. It should be noted that, in the areas of on-line operation, error-recovery, and programming notes, this manual refers to the 1401 attachment only.

For additional information, readers are referred to the following publications: *IBM 1401/1460 Miscellaneous Input/Output Instructions*, Form A24-3068; and *IBM 1419 Magnetic Character Reader with IBM 1410 System*, Form A22-0536. For information concerning the attachment of the IBM 1219/1419 Model 32 to the IBM System/360 Models 30 or 40, readers are referred to *IBM 1419 Model 32 Attached to IBM System/360 Model 30 or 40*, Form A19-0023. (60 pages)

A19-0019 IBM System/360 Model 30, 13 **1401/1440/1460 Compatibility Feature** **Inverted Print Edit and Sterling Sub-Features**

This publication is a supplement to the source manual entitled *IBM System/360 Model 30, 1401/1440/1460 Compatibility Feature*, Form A24-3255, and should be read in conjunction with it. The information contained herein is intended primarily for users in World Trade sterling countries.

This publication is limited to a description of (1) the use of the Comma and Decimal Point Inversion Sub-Feature; and (2) how sterling-currency applications can be processed with the Sterling Currency Sub-Feature without conversion of existing 1400-series programs.

The reader is also referred to the *IBM System/360 Model 30, Functional Characteristics*, Form A24-3231, for a description of the capabilities, functions, and operational characteristics of the System/360 Model 30; and to *Reference Manual, IBM 1401 Data Processing System Sterling Currency Features*, Form UK31401-0. (2 pages)

A19-0023 IBM 1419 Model 32 Attached to 03 **IBM System/360 Model 30 or 40; For** **IBM World Trade Use Only**

This publication is a supplement to *IBM 1219 Reader Sorter Model 32—IBM 1419 Magnetic Character Reader Model 32*, Form A19-0004, and should be read in conjunction with it.

This publication is limited to certain additions to A19-0004. Additional operating information relating to Power On-Power Off, Channel Line Termination, and Sort Mode Selection is provided. (12 pages)

A21-9012 IBM 1231, 1232 Optical Mark 03 **Page Readers**

This publication describes the functions, controls,

principles of operation, data flow, and programming for the IBM 1231 and 1232 Optical Mark Page Readers. Special features available are explained. Also included is a section on the IBM 534 Model 3 Card Punch. (52 pages)

A21-9025 IBM 1442 N1 and N2 Component 03 **Description and Operating Procedures**

This publication describes the operating principles, machine features, and operating procedures of the IBM 1442 N1 Card Read Punch and the IBM 1442 N2 Card Punch. Also, it discusses in general the operation of these devices with IBM System/360.

For further information about these machines as they are used with System/360, refer to *IBM System/360 Principles of Operation*, Form A22-6821, and other publications listed in *IBM System/360 Bibliography*, Form A22-6822. (15 pages)

A21-9026 IBM 2501 Models B1 and B2 03 **Component Description and** **Operating Procedures**

This publication describes the operation of the IBM 2501 Card Reader Models B1 and B2 with IBM System/360 Models 30 and higher. Operating principles, system communication, and operating procedures are presented. (14 pages)

A21-9027 IBM 2520—B1, B2, and B3 03 **Component Description and** **Operating Procedures**

This publication describes the IBM 2520 Card Read Punch Model B1 and the IBM 2520 Card Punch Models B2 and B3 with IBM System/360 Models 30 and above. Included are discussions of machine features and operating principles and procedures. (32 pages)

A21-9031 IBM 1231 N1 Component 03 **Description and Operating Procedures**

This publication describes the functions, principles of operation, data flow, operating procedures, and controls of the 1231 N1 Optical Mark Page Reader. The programming section explains 1231 N1 operation with System/360. Input document specifications are also explained. (28 pages)

A21-9033 IBM 2540 Component Description 03 **and Operating Procedures**

This publication explains the operating principles, procedures, and controls of the IBM 2540 Card Read Punch. Special features for the 2540 are also discussed.

Refer to the SRL publication, *IBM 2821 Control Unit*, Form A24-3312, for information about the program instructions that control the 2540. (14 pages)

A21-9064 IBM 1287 Optical Reader 03 **Component Description and** **Operating Procedures**

This publication describes the IBM 1287 Optical Reader and its features, operating principles and procedures, and operations with IBM System/360. The manual also contains detailed specifications for input documents and tapes and for input data quality.

For more information about proper numeric handwriting for 1287 input, see *Handwriting Numbers and Symbols for the IBM Optical Reader*, Form R29-1280, and the handwriting practice sheet, Form R29-1281.

For more detailed programming information, see one or more of these SRL manuals as appropriate:

IBM System/360 Basic Programming Support, Specifications, Assembler with Input/Output Macros (8K Tape), Form C24-3355.

IBM System/360 Basic Programming Support, Programmer's Guide (8K Tape), Form C24-3354.

IBM Basic Operating System/360 Specifications, Assembler with I/O Macros, Form C24-3361.

IBM Basic Operating System/360, Programmer's Guide, Form C24-3372.

IBM System/360 Disk Operating System, Extended Supervisor and Input/Output Macros, Form C24-5037.

IBM Disk Operating System/360, Data Management Concepts, Form C24-3427.

IBM System/360 Tape Operating System, Extended Supervisor and Input/Output Macros, Form C24-5035.

IBM System/360 Tape Operating System, Data Management Concepts, Form C24-3430. (58 pages)

A21-9070 IBM 1050 Special Features 13 **Description—IBM ASCII Data** **Communication System with RPQ** **Features F18589, 82027, 842028** **and 842029**

This publication serves as a reference manual for the IBM 1050 ASCII Data Communication System, which provides the IBM System/360 Data Processing System with remote input and output capabilities using the American Standard Code for Information Interchange.

Detailed information about the IBM System/360 and the appropriate transmission control unit will be found in their respective SRL publications. Site preparation information in the publication, *IBM 1050 Data Communication System Installation Manual, Physical Planning*, Form A24-3022 applies for this system. For titles and abstracts of associated publications, see the *IBM Teleprocessing Bibliography*, Form A24-3089 and the *IBM System/360 Bibliography*, Form A22-6822. (52 pages)

A22-6810 IBM System/360 System Summary 00

This publication provides basic information about the IBM System/360, with the objective of helping readers to achieve a general understanding of this new data processing system and the interrelationships of its models and parts. Broad system concepts, basic and optional features, and specific input/output devices are briefly discussed.

This publication does not apply to System/360 Model 20. All Model 20 publications are listed in the *IBM System/360 Model 20 Bibliography*, Form A26-3565.

Detailed information on processing is in *IBM System/360 Principles of Operation*, Form A22-6821.

Description of programming systems and languages, as well as further details on the I/O devices and Teleprocessing capabilities described herein, are in publications listed in the *IBM Tele-Processing Bibliography*, Form A24-3089. (88 pages)

A22-6813 IBM System/360 Model 40 Configurator	00	A22-6828 IBM 7340 Hypertape Drive Model 3 with IBM System/360	05	A22-6861 IBM 7340 Model 3 Hypertape Drive—Original Equipment Manufacturers' Information	19
A schematic drawing shows the complete Model 40 processor with all standard and optional features. Input/output devices are shown on Form A22-6823 and data communications devices on Form A22-6824. (1 page)		This publication describes the functions, operations, controls, and timings of the IBM 7340 Hypertape Drive Model 3, including the dynamics of 7340 reading and writing and details on the tape, tape cartridge, and optional automatic cartridge loader. In addition, all necessary details on the function and operation of the IBM 2802 Hypertape Control are presented.		The information in this manual is provided to assist designers of accessory equipment for IBM 7340 Model 3 Hypertape Drives. It includes all specifications, timing information, circuit descriptions, and cable information necessary for attaching a 7340-3 to a control unit. Additional details about the operation and maintenance of the 7340-3 may be obtained from the Customer Engineer's Manual of Instruction, the CE Reference Manual and the CE Maintenance Diagram Manual. (31 pages)	
A22-6814 IBM System/360 Model 50 Configurator	00	A22-6843 IBM System/360 I/O Interface-Channel to Control Unit—Original Equipment Manufacturers' Information	19	A22-6862 IBM 2400 Magnetic Tape Units—Original Equipment Manufacturers' Information	19
A schematic drawing shows the complete Model 50 processor with all standard and optional features. Input/output devices are shown on Form A22-6823 and data communications devices on Form A22-6824. (1 page)		This Original Equipment Manufacturers' Information (OEMI) manual provides the definitions and functional descriptions of the interface lines for the IBM 1/0 Interface-Channel to Control Unit. In addition, it contains electrical, mechanical, and cabling considerations and specifications of this interface. (60 pages)		This manual will assist designers of accessory equipment for IBM 2401, 2402 Models 1-6 Magnetic Tape Units, IBM 2403 Models 1-6 and 2404 Models 1-3 Magnetic Tape Units and Controls and IBM 2803/2804 Models 1 and 2 Tape Control Units.	
A22-6821 IBM System/360 Principles of Operation	01	A22-6844 IBM 2701 Data Adapter Unit Original Equipment Manufacturers' Information	19	A22-6864 IBM 2701 Data Adapter Unit Principles of Operation	09
This publication is the machine reference manual for the IBM System/360. It provides a direct, comprehensive description of the system structure; of the arithmetic, logical, branching, status switching, and input/output operations; and of the interruption system. The reader is assumed to have a basic knowledge of data processing systems and to have read the <i>IBM System/360 System Summary</i> , Form A22-6810, which describes the system briefly and discusses the input/output devices available.		This publication describes the various interfaces associating the IBM 2701 Data Adapter Unit with communication line data subsets and other external devices. In addition, the electrical, mechanical, and cabling considerations and specifications of these interfaces are given. (25 pages)		This manual provides information concerning the operation of the IBM 2701 Data Adapter Unit. The manual is divided into three sections.	
For information about the characteristics, functions, and features of a specific System/360 model, use the functional characteristics manual for that model in conjunction with the <i>IBM System/360 Principles of Operation</i> . Descriptions of specific input/output devices used with the System/360 appear in separate publications. Publications that relate to the IBM System/360 Model 20 are described in the <i>IBM System/360 Model 20 Bibliography</i> , Form A26-3565. (172 pages)		A22-6845 IBM System/360 Direct Control and External Interrupt Features—Original Equipment Manufacturers' Information	19	The first section gives a general description of the 2701 operating terminals, functional organization, special features, and the various configurations of the 2701.	
		This manual describes the specifications, timings, circuits and characteristics of the IBM System/360 Direct Control and External Interrupt features. The External Interrupt feature provides the means by which external devices may signal the CPU to gain its attention. The Direct Control feature includes the External Interrupt and provides an interface, exclusive of the channel, for the exchange of information between two central processing units, or between a central processing unit and external devices.		The second section describes the operation of the 2701 with the System/360. Subjects discussed include communication line addressing, multiplexor and selector channel operation, and I/O instructions.	
A22-6823 IBM System/360 Input/Output Configurator	00	A22-6846 IBM System/360 Component Description—IBM 2702 Transmission Control	09	The third section covers transmission adapters. It gives descriptions of the operation of each adapter including transmit and receive operation sequences, status and sense bytes, and polling and addressing of the terminals. (48 pages)	
This configurator presents the various input/output equipment for the System/360 Models 30 to 75. This input/output equipment is classified according to types. Each type appears on a separate page. (16 pages)		This publication provides information concerning the operation of the IBM 2702 Transmission Control.		The first section contains a general description of the 2702, including the data communication terminals operable with the 2702, the terminal controls used by the 2702 to operate with the various terminals, and the data sets and communication facilities used.	
A22-6824 IBM System/360 Data Communications and Acquisition Configurator	00	A22-6846 IBM System/360 Component Description—2400-Series Magnetic Tape Units and 2816 Switching Unit	05	The Operational Functions section discusses communication line addressing, 2702-multiplexor channel operation, and I/O instructions concerning the 2702. This section also contains the various commands and orders used by the 2702 and the transmit and receive operation sequences and, in addition, describes the functions of the status and sense bytes and the polling and addressing of the terminals. (32 pages)	
This configurator presents the various possible configurations for the IBM 2701 Data Adapter Unit and the IBM 2702 Transmission Control. Examples are given of the adapters and machine features needed for specific configurations.		This manual contains a comprehensive presentation of the characteristics, functions, and features of the IBM 2400-Series Magnetic Tape Units and Controls, and a general description of the IBM 2816 Model 1 Switching Unit. The 2400-series consists of the 2401 and 2402 Magnetic Tape Units; the 2403, 2404, and 2415 Magnetic Tape Units and Controls; and the 2803 and 2804 Tape Control Units.		In most instances, operational descriptions are limited to the channel and command level. Operating functions and procedures common and fundamental to all I/O operations are described in <i>IBM System/360 Principles of Operation</i> , Form A22-6821.	
Included are the following configurations:				Subjects covered include magnetic tape unit principles; keys and lights; tape load, unload, and cleaning procedures; status and sense information; magnetic tape handling; tape block and reel organization; and error recovery procedures. (56 pages)	
Configurator for 2701 Low Speed Communication Lines	3				
Configurator for 2701 Synchronous Communication Lines	5				
Configurator for Combinations of 2701 Low Speed and Synchronous Communication Lines	7				
Configurator for 2701 Data Acquisition	9				
Configurator for Combinations of 2701 Data Acquisition and Communication Lines	11				
Configurator for the IBM 2702	13				
Configurator for a 2701/1030 System	15				
Configurator for a 2702/1030 System	17				
	(19 pages)				

- A22-6868 IBM System/360 Component Description—IBM 1827 Data Control Unit** 03
This publication contains the functional characteristics and operating information for the IBM 1827 Data Control Unit. Operations with the IBM System/360 Models 30, 40, 44, and 50 are described. The following IBM 1800 Data Acquisition and Control System Process i/o features are described: Digital Input, Digital Output, Analog Output, Analog Input, and Comparator. (40 pages)
- A22-6869 IBM 2361 Core Storage—OEM** 19
The information in this manual is provided to assist designers of accessory equipment for IBM 2361 Core Storage Model 1 and Model 2. It includes all specifications, timing information, circuit descriptions, and cable information necessary for attaching a 2361 to a system. Additional details about the operation and maintenance of the 2361 may be obtained from the local IBM Branch Office. (22 pages)
- A22-6872 1827 Data Control Unit Configurator** 00
A schematic drawing shows the attachment of IBM 1800 components to an IBM System/360. (1 folded page)
- A22-6874 IBM System/360 Model 44 Configurator** 00
A schematic drawing shows the complete Model 44 processor with all standard and optional features. Input/output devices are shown on Form A22-6823, and Data Communications devices on Form A22-6824. (1 page)
- A22-6875 IBM System/360 Model 44 Functional Characteristics** 01
This manual describes the system structure, features, instruction timings and formulas, channels, device addressing, and operator controls unique to System/360 Model 44.
It is assumed the reader has a knowledge of the System/360 as defined in the *IBM System/360 Principles of Operation*, Form A22-6821 and the *IBM System/360 System Summary*, Form A22-6810.
For installations using the direct word, direct data channel, or priority interrupt features, a companion publication is *Data Acquisition Special Features for the IBM System/360 Model 44*, Form A22-6900. Other related literature is described in *IBM System/360 Bibliography*, Form A22-6822. (56 pages)
- A22-6877 IBM 1052 Printer-Keyboard Model 7 with IBM 2150 Console** 03
This publication describes the functional and operational characteristics of the IBM 1052 Printer-Keyboard Model 7 with IBM 2150 Console. (20 pages)
- A22-6881 IBM System/360 Model 40 Functional Characteristics** 01
This manual presents the organization, characteristics, functions and features unique to the IBM System/360 Model 40. Major areas described are system structure, generalized information flow, standard and optional features, system control panel, instruction timings, and channel characteristics and functional evaluation.
Descriptions of specific input/output devices used with the IBM System/360 Model 40 appear in separate publications. Configurators for the IBM 2040 Processing Unit and i/o devices are available.
It is assumed that the reader has a knowledge of the System/360 as defined in the *IBM System/360 Principles of Operation*, Form A22-6821 and the *IBM System/360 System Summary*, Form A22-6810. (112 pages)
- A22-6884 IBM System/360 Model 65 Functional Characteristics** 01
This manual presents the organization, characteristics, functions and features unique to the IBM System/360 Model 65. Major areas described are system structure, generalized information flow, standard and optional features, instruction timings, and the system control panel. (29 pages)
- A22-6887 System/360 Model 65 Configurator** 00
A schematic drawing shows the complete Model 65 processor with all standard and optional features. Input/output devices are shown in Form A22-6823, and Data Communications devices on Form A22-6824. (1 page)
- A22-6888 IBM System/360 Model 75 Configurator** 00
A schematic drawing shows the complete Model 75 processor with all standard and optional features. Input/output devices are shown on Form A22-6823 and Data Communications devices on Form A22-6824. (2 pages)
- A22-6889 IBM System/360 Model 75 Functional Characteristics** 01
This manual presents the organization, characteristics, functions and features unique to the IBM System/360 Model 75. Major areas described are: system structure, generalized information flow, standard and optional features, instruction timings, and the system control panel.
Descriptions of specific input/output devices used with the IBM System/360 Model 75 appear in separate publications.
This manual assumes that the reader has a knowledge of System/360 as defined in the *IBM System/360 Principles of Operation*, Form A22-6821 and the *IBM System/360 System Summary*, Form A22-6810. (36 pages)
- A22-6892 IBM System/360 Special Feature Channel-to-Channel Adapter** 13
This manual describes the functions and operating characteristics of the channel-to-channel adapter in either multiple-processor or single-processor systems.
IBM System/360 input/output operations that are exclusive of device considerations are described in detail in the *IBM System/360 Principles of Operation*, Form A22-6821. (16 pages)
- A22-6895 IBM System/360 Component Descriptions—2301 Drum Storage and 2820 Storage Control** 07
This manual describes the operating characteristics of the IBM 2301 Drum Storage and the IBM 2820 Storage Control and discusses in detail the input/output operations performed by those units.
Input/output operations in the IBM System/360 that are exclusive of device considerations are described in detail in the *IBM System/360 Principles of Operation*, Form A22-6821. (20 pages)
- A22-6898 IBM System/360 Model 50 Functional Characteristics** 01
This manual presents the organization, characteristics, functions and features unique to the IBM System/360 Model 50. Major areas described are system structure, generalized information flow, standard and optional features, system control panel, instruction timings, channel characteristics, concurrent input/output capabilities, selector channel loading, multiplexer channel loading, and channel interference with the CPU.
Descriptions of specific input/output devices used with the IBM System/360 Model 50 appear in separate publications.
Configurators for the IBM 2050 Processing Unit and i/o devices are available. See *IBM System/360 Bibliography*, Form A22-6822.
It is assumed that the reader has a knowledge of the System/360 as defined in the *IBM System/360 Principles of Operation*, Form A22-6821 and the *IBM System Summary*, Form A22-6810. (96 pages)
- A22-6900 Data Acquisition Special Features for the IBM System/360 Model 44** 13
This publication provides information about the operation, control, and interface of three special features:
Direct Word
Direct Data Channel
Priority Interrupt
These features are particularly suitable for high-speed data acquisition and relatively complex control applications in the scientific fields.
Additional information can be found in *IBM System/360 Model 44 Functional Characteristics*, Form A22-6875, and *IBM System/360 Principles of Operation*, Form A22-6821. (26 pages)
- A22-6906 IBM System/360 Power Control Interface—Original Equipment Manufacturers' Information** 19
This Original Equipment Manufacturers' Information (OEM) manual provides the definitions and descriptions of the power control interface lines. In addition, the manual contains the emergency power off operations and procedures. (10 pages)
- A22-6907 IBM System/360 Model 91 Functional Characteristics** 01
This publication describes the organization and the functional characteristics of the IBM System/360 Model 91, an information-processing system designed for ultrahigh-speed, large-scale scientific and business applications.
The system components are described, and a detailed consideration is given to the functions of processor storage, the central processing unit, the input/output channels, and the operator-control and operator-intervention portions of the system control panel. In addition, certain coding and timing considerations are discussed.
The reader is assumed to have a knowledge of information-processing systems and to have read the *IBM System/360 Principles of Operation*, Form A22-6821. (33 pages)
- A22-6908 IBM System/360 Model 50 Operating Procedures** 01
This manual describes operator procedures for an IBM 2050 Processing Unit, operating with or without an associated IBM 1052 Printer-Keyboard. The manual describes machine functions, machine procedures, program-oriented procedures, and operator-intervention procedures. In addition, an appendix of reference material and an index are included.
The reader is assumed to have a knowledge of the following SRL publications:
IBM System/360 Principles of Operation, Form A22-6821

IBM System/360 Model 50 Functional Characteristics, Form A22-6898

IBM System/360 Basic Programming Support Operating Guide for Basic Assembler and Utilities, Form C28-6557

IBM System/360 Basic Programming Support Operating Guide, Form C24-3391

IBM System/360 Basic Operating System Operating Guide, Form C24-3450

IBM System/360 Operating System Operator's Guide, Form C28-6540

For information pertaining to the operation of units attachable to the System/360 Model 50, refer to the appropriate *SRL* publication. *SRL* publications that pertain to *IBM System/360* and attachable units are abstracted and referenced by form number in *IBM System/360 Bibliography*, Form A22-6822. (56 pages)

A22-6909 IBM System/360 Model 75 Operating Procedures 01

This manual describes operator procedures for an *IBM 2075 Processing Unit*, operating with or without an associated *IBM 1052 Printer-KeyBoard*. The manual describes system control panel machine functions, machine procedures, program-oriented procedures, and operator-intervention procedures. An appendix of reference material and an index are included.

The reader is assumed to have a knowledge of the following *SRL* publications:

IBM System/360 Principles of Operation, Form A22-6821 (sections on "System Structure" and "System Control Panel")

IBM System/360 Model 75 Functional Characteristics, Form A22-6889

IBM System/360 Tape Operating System Operating Guide, Form C24-5021

IBM System/360 Disk Operating System Operating Guide, Form C24-5022

IBM System/360 Operating System Operator's Guide, Form C28-6540

For information pertaining to the operation of *I/O* units that are attachable to the System/360 Model 75, refer to the appropriate *SRL* publication. All System/360 *SRL* publications that pertain to *IBM System/360* and attachable units are abstracted and referenced by form number in *IBM System/360 Bibliography*, Form A22-6822. (39 pages)

A24-1421 1412 Magnetic Character Reader Model 1 03

Describes the features and functions of the *IBM 1412 Magnetic Character Reader Model 1*. Explains in detail its operating principles, including document feeding, reading, and distribution, as well as control of both on-line and off-line operations. A section on operating procedures is included.

Programming notes and an explanation of 1401 stored program instructions used to control 1412 operations are presented.

Explains the use and operation of four special features: Multiple Columns Select—Sort Suppress Feature, Auxiliary Document Counter, Self-Checking Number Verification, and Electronic-Accumulator and Sequence-Checking Feature. (56 pages and cover)

A24-1431 IBM 1403 Printer—OEM 19

This manual contains information that will assist non-*IBM* engineers to attach the *IBM 1403 Printer* to their equipment. It includes a general description of machine functions and a reference listing of publications and engineering documents. It also contains information concerning machine interface not readily available in other publications. Charts of signal con-

nectors and power plug pin assignments are included. (16 pages)

A24-1446 IBM 1404 Printer 03

The *IBM 1404 Printer*, an output unit for the *IBM 1401 Data Processing System* and the *IBM System/360*, Models 30, 40, and 50, is capable of printing either cut-card forms or continuous forms. This reference publication presents the functional and operational characteristics of the 1404, including the settings of the feed mechanism and the print unit. It also describes the read-compare special feature. Information on timing and on certain normal operating procedures is presented. (24 pages)

A24-1452 Print Quality Considerations IBM 1418 and IBM 1428 03

This publication contains a detailed description of the print quality requirements of printing to be read by the *IBM 1418 Optical Character Reader* and the *IBM 1428 Alphameric Optical Reader* and to be used as input to an *IBM 1401 Data Processing System*, *IBM 1460 Data Processing System*, and *IBM System/360 Model 30*. The use of print-quality measuring devices is fully explained with examples of the range of acceptable printing produced by the *IBM 407 Accounting Machine*, *IBM 1403 Printer*, *IBM Selectric® Typewriter* and *IBM Electric Typewriter*.

Refer to *IBM 1401/1460 Bibliography*, Form A24-1495, for other publications. (44 pages)

A24-1473 IBM 1418 Optical Character Reader—IBM 1428 Alphameric Optical Reader 03

This publication describes the operation of the *IBM 1418 Optical Character Reader* and the *IBM 1428 Alphameric Optical Reader* used as input devices to an *IBM 1401 Data Processing System*.

Included are a description of character and mark-reading capabilities, off-line sorting, document-design requirements, and examples of the range of acceptable print quality of the documents to be scanned by both machines. The use of the *IBM 1418/1428 Document Design and PDS Timing Chart* and the formulas for calculating document output and maximum character reading per document are also fully discussed as an aid in optimizing the design of documents to be read by both machines. (44 pages)

A24-1499 IBM 1219 Reader Sorter, IBM 1419 Magnetic Character Reader 03

This publication contains detailed information about the keys, lights, switches, mechanical features, and special features of the *IBM 1219 Reader Sorter* and *IBM 1419 Magnetic Character Reader*. On-line and off-line data-flow and operating theory are fully discussed with step-by-step procedures for each reader operation. Programming notes and error-correction routines are also covered in detail.

Refer to *IBM 1401/1460 Bibliography*, Form A24-1495, for additional publication information. (60 pages)

A24-3073 IBM 1403 Printer Component Description 03

This reference publication describes the various models of the *IBM 1403 Printer* used with *IBM 1401*, 1410, 1420, 1440, 1460, 7010, 7040, 7044, and *System/360 Models 20, 30, 40, 50, 65, and 75 Data Processing Systems*.

The functional and operating characteristics of the printer are presented.

The special features available for the 1403 are included, and timing information is given for printing and paper movement. (42 pages)

A24-3089 IBM SRL Bibliography Supplement—Teleprocessing 00

This bibliography lists the available reference literature for installing, programming, and operating *IBM* teleprocessing equipment, used independently or with several data processing systems. For publications on data communications equipment and programs associated with a single data processing system, see the bibliography for that system.

Part 1 lists publications by major subjects. This sequence (subject code) may be used in building a library.

Part 2 is a cross-index of tele-processing equipment with the associated data processing system.

Part 3 contains abstracts of tele-processing publications in form-number sequence. Copies of most form-numbered publications may be ordered through the local *IBM Sales Representative*. (20 pages)

A24-3120 IBM 1443 Printer Models 1, 2, and N1, and IBM 1445 Printer Models 1, and N1 03

This reference publication describes the operation of the *IBM 1443* and *1445 Printers* with the *IBM 1240*, *1440*, and *System/360 Model 30 Data Processing Systems*. It discusses timing information for the printer and the tape-controlled carriage as well as their functional and operating characteristics. The speed of the printer using various character sets is also described.

For a list of other publications and abstracts, see the *IBM bibliography* for the associated data processing system. (14 pages)

A24-3231 IBM System/360 Model 30 Functional Characteristics 01

This reference publication describes the relationship of the *IBM System/360 Model 30* to the entire *System/360*. The system's capabilities, features, *I/O* channels, and operations are also discussed.

The reader can find a more detailed description of the *System/360* operations in *IBM System/360 Principles of Operation*, Form A22-6821. The interrelationships of the models and units available with the *System/360* are broadly described in *IBM System/360 System Summary*, Form A22-6810. (64 pages)

A24-3232 IBM System/360 Model 30 Configurator 00

A schematic drawing shows the complete *Model 30* processor with all standard and optional features. Input/output devices are shown on Form A22-6823 and data communications devices on Form A22-6824. (1 page)

A24-3255 IBM System/360 Model 30 1401/1440/1460 Compatibility Feature 13

This publication describes the *1401/1440/1460 Basic Compatibility feature* and associated subfeatures for the *System/360 Model 30*. These special features enable a rapid and simplified transfer from *1401-*, *1440-*, or *1460-oriented applications* to the *IBM System/360 Model 30*.

Refer to the *IBM System/360 Model 30 Functional Characteristics*, Form A24-3231, for description of the capabilities, functions, and operational characteristics of the *System/360 Model 30*. (114 pages)

A24-3256 IBM 1285 Optical Reader Component Description 03

This reference publication describes the functional and operating characteristics of the *IBM 1285 Optical Reader*. Also presented are the input document requirements related to print quality, format, and type

of paper. Programming considerations for IBM 1285's attached to the System/360 are presented. For further information about the IBM 1285 attached to the IBM 1401, 1440, or 1460 Systems, see the appropriate system publication. Titles and abstracts for related publications are listed in the IBM Bibliography for the associated data processing system. (28 pages)

A24-3312 IBM 2821 Control Unit 03

This reference publication presents a description of input/output operations controlled through the IBM 2821 Control Unit. The IBM 2540 Card Read-Punch and the IBM 1403 and 1404 Printers controlled by the IBM 2821 Control Unit are briefly described. Commands, status, and sense information pertaining to the attached input/output units is presented. Programming timing considerations for control unit, card reader, card punch, and printers are also presented.

For further information about the attached input/output units, refer to *IBM 2540 Card Read-Punch*, Form A21-9033, *IBM 1403 Printer*, Form A24-3073, and *IBM 1404 Printer*, Form A24-1446. For further information about input/output and channel operations, refer to *IBM System/360 Principles of Operation*, Form A22-6821. Other related literature is listed in *IBM System/360 Bibliography*, Form A22-6822. (76 pages)

A24-3342 Batch Numbering Feature for IBM 1241 and 1419 Magnetic Ink Character Recognition Readers 13

This publication describes the functions and features of the Batch Numbering special feature when used with the IBM 1241 Magnetic Ink Character Recognition Reader and the IBM 1419 Magnetic Character Reader.

The operation of the keys, lights, and switches, as well as the programming information needed to operate the feature, is covered in detail. (14 pages)

A24-3356 IBM 1404 Printer Model 2—OEMI 19

This reference manual contains information that will assist non-IBM engineers to attach their equipment to the IBM 1404 Printer Model 2. It contains a general description of machine functions, a reference listing of publications and engineering documents, and information concerning machine interface not readily available in other publications. For titles and abstracts of associated publications, see the *IBM 1401 and 1460 Bibliography*, Form A24-1495. (20 pages)

A24-3365 IBM System/360 Model 30 1620 Compatibility Feature 13

This publication describes the IBM 1620 Compatibility Feature for the IBM System/360 Model 30. This special feature provides a means of rapid and simplified transfer of 1620-oriented applications to the IBM System/360 Model 30. (26 pages)

A24-3373 IBM System/360 Model 30 Operator's Guide 01

This reference publication describes operator procedures for the IBM 2030 Processing Unit and for the IBM 1050 Documentary Console (attached to the IBM System/360 Model 30). For additional information pertaining to operation of the I/O units attachable to System/360 Model 30, refer to the appropriate Systems Reference Library publication. Systems Reference Library publications that pertain to IBM System/360 and attachable I/O units are abstracted and referenced by form number in *IBM System/360 Bibliography*, Form A22-6822. (39 pages)

A24-3388 IBM 2671 Paper Tape Reader 03

This reference publication describes the operation of the IBM 2671 Paper Tape Reader and the IBM 2822 Paper Tape Reader Control Unit when used as input to the IBM System/360 Models 30, 40, and 50. The System/360 channel commands necessary to control the operation of the IBM 2671 are fully described.

Console controls, tape specifications, tape splicing procedures, tape loading procedures, and special features available for the IBM 2671 are also described.

Titles and abstracts of associated publications are listed in the *IBM System/360 Bibliography*, Form A22-6822. (28 pages)

A24-3411 IBM System/360 Model 30 Channel Characteristics and Functional Evaluation 01

This reference publication describes methods used to calculate System/360 Model 30 data handling capabilities that are dependent upon I/O-channel configurations and operations. Consideration of methods are also presented for:

1. Priority attachment of I/O units for maximum throughput,
2. Addressing I/O units,
3. Calculating buffer transfer times,
4. Calculating interference (with the processing unit) caused by channel operations.

Calculations for a System/360 Model 30 with a 1.5-microsecond Read/Write (rw) cycle and with a 2-microsecond rw cycle are discussed separately.

The user of this publication should be thoroughly familiar with I/O programming considerations as described in *IBM System/360 Principles of Operation*, Form A22-6821. Information related to specific I/O devices is contained in separate Systems Reference Library publications. These publications are listed by form number and briefly described in *IBM System/360 Bibliography*, Form A22-6822.

When you are performing loading calculations related to the multiplexor channel operating in multiplex mode, use the *IBM System/360 Model 30 Multiplexor Channel Worksheet*, Form X24-3407. If the IBM 2702 Communications Control is used in your configuration, use the *IBM System/360 Model 30 2702 Worksheet*, Form X24-3406. (75 pages)

A24-3415 2741 Communications Terminal 09

This reference publication describes the functional characteristics of the IBM 2741 Communications Terminal. The description is oriented toward the machine operator. The keyboard, controls, and maintenance are considered in detail. Applications, programming considerations, and communication facilities are described briefly. (2 pages)

A24-3423 2740 Communications Terminal, Physical Planning 15

This publication contains physical planning information for the IBM 2740 Communications Terminal. Included are physical specifications and electrical and environmental requirements.

Cabling requirements are specified and are included in the diagram showing communication facilities that can be used. (2 pages)

A24-3424 IBM 2741 Communications Terminal Physical Planning 15

This publication contains physical planning information for the IBM 2741 Communications Terminal. Included are physical specifications and electrical and environmental requirements. Cabling requirements are specified and include a diagram showing communication facilities that can be used. (2 pages)

A24-3425 IBM 2712 Remote Multiplexor Physical Planning 15

This publication contains physical planning information for the IBM 2712 Remote Multiplexor. Included are physical specifications, electrical and environmental requirements, and cabling requirements. Communication facilities and terminals that can be used with the 2712 Models 1 and 2 are also specified. (1 sheet)

A24-3426 IBM 2712 Remote Multiplexor 09

This reference publication describes the IBM 2712 Remote Multiplexor and its operation. The 2712 is used with IBM 1050, 1060, 2740, and 2741 Terminals (134.49 baud) and with telegraph terminals (74.2 baud) connected to IBM System/360 through the IBM 2702 and 2703 Transmission Control Units. Communication facilities that can be used with the 2712 are specified. (8 pages)

A24-3488 IBM 1443 and 2203 Printers Form-Design Considerations 03

This publication presents the considerations that should be kept in mind by personnel involved in designing, ordering, and/or using forms for either the IBM 1443 or IBM 2203 Printer. (13 pages)

A26-3567 IBM 2311 Disk Storage Drive Original Equipment Manufacturers' Information 19

This manual contains information that will assist non-IBM engineers in attaching the IBM 2311 Disk Storage Drive to their equipment. It includes a general description of machine functions, a reference listing of publications and engineering documents, and information concerning machine interface not readily available in other publications. (8 pages)

A26-3574 IBM 2321 Data Cell Drive—OEMI 19

This publication contains information for engineers who plan to attach the IBM 2321 Data Cell Drive to their equipment.

The information includes a general description of machine functions, a reference listing of useful publications and engineering documents, and information concerning machine interfaces. (22 pages)

A26-3599 IBM System/360 Component Descriptions—2314 Direct Access Storage Facility and 2844 Auxiliary Storage Control 07

This publication describes the IBM 2314 Direct Access Storage Facility and the IBM 2844 Auxiliary Storage Control, and presents functional and operating characteristics for these devices. Capacities, timing considerations, commands, operating procedures, and sense and status information are described. The user of this publication should be thoroughly familiar with the I/O programming considerations described in *IBM System/360 Principles of Operation*, Form A22-6821. (62 pages)

A26-3633 Data Cell Handling Guide 07

This manual provides suggested operating and handling procedures for the IBM Data Cell used with the IBM 2321 Data Cell Drive. (12 pages)

A26-5661 IBM 2301 Drum Storage Original Equipment Manufacturers' Information 19

This publication provides definitions and functional descriptions of the interface lines for the 2301 Drum Storage. It also contains specifications, timings, and cable information. (10 pages)

- A26-5663 IBM 2303 Drum Storage** 19
Original Equipment Manufacturers' Information
 This publication provides definitions and functional descriptions of the interface lines for the 2303 Drum Storage. It also contains specifications, timings, and cable information. (11 pages)
- A26-5988 IBM System/360 Component** 07
Descriptions—2841 Storage Control
2302 Disk Storage, Models 3 and 4
2311 Disk Storage Drive, Model 1
2321 Data Cell Drive
2303 Drum Storage
 This publication contains reference information for the operation and programming of storage devices which attach to the IBM 2841 Storage Control. These storage devices include the IBM 2311 Disk Storage Drive, Model 1; the IBM 2302 Disk Storage, Models 3 and 4; the IBM 2321 Data Cell Drive; and the IBM 2303 Drum Storage (66 pages)
- A26-5993 IBM System/360 Custom Feature** 13
2972 Line Control Unit Model 1
 This publication presents a description of the operation of the IBM 2972 Line Control Unit Model 1. A sample configuration and a description of operation sequence are included. (20 pages)
- A27-2700 IBM System/360 Component** 03
Description
IBM 2260 Display Station
IBM 2848 Display Control
 This manual describes the functional and operating characteristics of the IBM 2260 Display Station and the IBM 2848 Display Control. The two units combine to provide a visual display of data stored in System/360. (19 pages)
- A27-2701 IBM System/360** 03
Component Description
IBM 2250 Display Unit Model 1
 This publication contains detailed information on programming, operation, and special features of the IBM 2250 Display Unit Model 1. The material is presented with the assumption that the reader has read the *IBM System/360 Principles of Operation*, Form A22-6821. The manual *IBM System/360 Component Description: IBM 2250 Display Unit Model 3; IBM 2840 Display Control* Form A27-2702 also may be of interest to the reader. (36 pages)
- A27-2702 IBM System/360 Component** 03
Description
IBM 2250 Display Unit Model 2
IBM 2840 Display Control Model 1
 This document presents detailed information about IBM 2250 Display Unit Model 2/IBM 2840 Display Control Model 1 programming, operation, and special features. The material is presented with the assumption that the reader has read the *IBM System/360 Principles of Operation*, Form A22-6821.
 The following publications may also be of interest to the reader:
IBM System/360 Component Description: IBM 2250 Display Unit Model 1, Form A27-2701.
IBM System/360 Component Description: IBM 2280 Film Recorder, IBM 2282 Film Recorder/Scanner, Form A22-6853.
IBM System/360 Operating System, Graphic Programming Services for IBM 2250 Display Unit, Preliminary Specifications, Form C27-6909.
- Each 2250 Model 1 attaches directly to the System/360 channel and is not used with the 2840 Display Control. Each film unit attaches to a 2840 Display Control Model 1 by means of a 2840 special feature and shares common 2840 circuitry with the attached 2250-2 Display Unit(s). Various film unit/2250-2 configurations are described in the film unit publication. (48 pages)
- A27-2703 IBM 2703 Transmission Control** 09
Component Description
 This publication provides a detailed description of the capabilities, features, and communication facilities required for the IBM 2703 Transmission Control Unit. The capabilities of the unit are grouped by: start-stop capabilities; and binary-synchronous capabilities. All items of a general nature are discussed in the section, "Detailed Description of Operations."
 The operator's controls and a detailed description of the communication facilities to which the 2703 can be attached are contained in the Appendix. For a complete listing of all SRL publications available in the IBM System/360 library, including abstracts, consult the *IBM System/360 Bibliography*, Form A22-6822. (78 pages)
- A27-2704 IBM System/360 Component** 09
Description—IBM 2711
Line Adapter Unit
 This manual describes the operation of the IBM 2711 Line Adapter Unit. Included is a general description of the 2711, the line adapters that can be contained in a 2711, the communication facilities that can be used with the 2711, and the operational functions of the line adapters. (6 pages)
- A27-2706 IBM 7770 Audio Response Unit** 19
Model 3, IBM 7772 Audio Response Unit
Original Equipment Manufacturers' Information
 The purpose of an OEMI manual is to provide information to enable another manufacturer to design equipment that can be used with IBM systems or devices. The OEMI manual provides supplemental data not found in other IBM publications. This manual describes the IBM 7770 Model 3 and IBM 7772 Audio Response Units. These units are capable of connecting an IBM System/360, via the multiplexor channel, to a telephone network. (32 pages)
- A27-2710 IBM 7772 Audio Response Unit** 09
Vocabulary
 This publication obsoletes the SRL Manual *IBM 7772 Audio Response Concepts and Vocabulary*, Form A22-6847. It contains a complete listing of the 7772 vocabulary. (8 pages)
- A27-2711 IBM System/360 Component** 09
Description—IBM 7772 Audio
Response Unit
 This manual describes the functional and operational characteristics of the IBM 7772 Audio Response Unit. Topics include vocabulary selection, system attachment considerations, communications requirements, and programming considerations. This manual supersedes IBM Systems Reference Library publications *IBM 7772 Audio Response Unit with System/360*, Form A22-6836, and *IBM 7770 and 7772 Audio Response Unit Common Carrier Information*, Form Z22-6831. (29 pages)
- A27-2712 IBM System/360 Component** 09
Description—IBM 7770 Audio Response
Unit Models 1, 2, and 3
 This publication describes the functional and operational characteristics of the IBM 7770 Audio Response Unit (Models 1, 2, and 3). Topics discussed include vocabulary selection, communications requirements, system attachment considerations, and programming considerations. This publication supersedes the following IBM Systems Reference Library publications:
IBM 7770 Audio Response Concepts and Vocabulary, Form A22-6805, and associated Technical Newsletter, Form N22-0137
IBM 7770 Audio Response Unit Model 1, Form A22-6800
IBM 7770 Audio Response Unit Model 1—Programming, Form A22-6806
IBM 7770 Audio Response Unit Model 2, Form A22-6804
IBM 7770 Model 3 Audio Response Unit With System/360, Form A22-6848
IBM 7770/7772 Audio Response Units: Information For Common Carrier Equipment, Form Z22-6831 (44 pages)
- A27-2715 IBM System/360 Special Feature** 13
Description—709/7040/7044/7090/
7094 II Compatibility Feature for
System/360 Model 65
 This publication contains information about the IBM 7090 Compatibility Feature (#7119). The Compatibility Feature adds interpretive facilities to System/360 Model 65 for use by the IBM 7090 Emulator Program. The combination of the feature and the program, referred to as the 7090 Emulator, allows execution on IBM System/360 Model 65 of programs written for the IBM 709, 7040, 7044, 7090, 7094, and 7094 II. (51 pages)
- A27-2716 IBM System/360 Special Feature** 13
Description—7080 Compatibility Feature
for System/360 Model 65
 This publication presents a detailed description of the IBM 7080 Compatibility Feature #7118. The Compatibility Feature adds interpretive facilities to System/360 for use by the IBM 7080 Emulator Program, Program No. 360C-EU-727. This combination of feature and program, referred to as the IBM 7080 Emulator, permits an IBM System/360 Model 65 to execute programs written for an IBM 7080 Data Processing System. (38 pages)
- A27-2717 IBM System/360 Special Feature** 13
Description—7074 Compatibility Feature
for System/360 Models 50 and 65
 This publication contains information about the IBM 7070/7074 Compatibility Feature. The Compatibility Feature adds interpretive facilities to System/360 Model 50 or 65 for use by the IBM 7074 emulator program. The combination of the feature and the program, referred to as the 7074 Emulator, allows execution on IBM System/360 Models 50 and 65 of programs written for the IBM 7070 and 7074. (34 pages)
- A27-2719 IBM System/360 Model 67** 01
Functional Characteristics
 This publication contains detailed information on the organization, characteristics, features, and functions unique to the IBM System/360 Model 67 Time Sharing System. Major areas described include time-sharing philosophy, system structure, new units, generalized information flow, standard and special features, instruction timings, and the system control panel.

Descriptions of specific input/output devices used with the Model 67 appear in separate publications. See the *IBM System/360 Bibliography*, Form A22-6822 for a listing and a brief description of these publications.

The material in this publication is presented with the assumption that the reader has knowledge of System/360 as defined in the *IBM System/360 Principles of Operation*, Form A22-6821 and the *IBM System/360 System Summary*, Form A22-6810. The *IBM System/360 Model 67 Configurator*, Form A27-2713 also may be of interest to the reader. (68 pages)

A27-2721 IBM System/360 Component Description—IBM 2250 Display Unit Model 3—IBM 2840 Display Control Model 2 03

This document presents detailed information about IBM 2250 Display Unit Model 3/IBM 2840 Display Control Model 2 programming, operation, and special features. The material is presented with the assumption that the reader has read the *IBM System/360 Principles of Operation*, Form A22-6821. (67 pages)

A27-3005 IBM 2780 Data Transmission Terminal—Component Description 09

This Component Description manual describes the principles of operation of the IBM 2780 Data Transmission Terminal. The data-link control characters, code structures, timeouts, and throughput rates associated with the Binary Synchronous method of transmission are described.

The communications facilities, data sets, and special features available for this teleprocessing terminal are also discussed. As an introduction to the Binary Synchronous method of transmission, refer to the manual, *General Information—Binary Synchronous Communications*, Form A27-3004.

Additional information on the Binary Synchronous method of transmission when using an IBM 2701 or IBM 2703 can be found in the following Technical Newsletters:

- TNL N27-3011—*IBM 2701 Data Adapter Unit, Binary Synchronous Communications and Associated Features* (TNL to A22-6864)
- TNL N27-3012—*IBM 2703 Transmission Control Unit, Binary Synchronous Communications Features* (TNL to A27-2703)

(58 pages)

A27-3007 IBM 2780 Data Transmission Terminal—Installation Manual—Physical Planning 15

This publication contains physical-planning information for the IBM 2780 Data Transmission Terminal, Models 1, 2, 3, and 4. Included are physical specifications and electrical and environmental requirements.

Refer to the *Installation Manual—Physical Planning, Unit Record Data Processing Equipment*, Form C24-1037, for additional information.

For titles and abstracts of associated publications, see the *IBM Teleprocessing Bibliography*, Form A24-3089. (10 pages)

C20-1618 IBM System/360 Number Systems 90

This IBM student text on number systems presents a brief review of the principles of positional notation, as applied to the binary and hexadecimal systems of notation. The publication covers the operations of binary and hexadecimal arithmetic, decimal-binary-hexadecimal base conversion, and the principles of base and base-minus-one complementation. (18 pages)

C20-1619 Catalog of Programs for IBM System/360—December 1965 20

This catalog contains a complete listing of all programs available for the IBM System/360. It obsoletes the pre-

vious edition of this catalog, Form No. C20-1619-0, and its supplement, Form No. N20-0030-1.

Instructions for ordering magnetic tape programs are contained in the section of the introduction entitled, "How to Order Programs."

This catalog contains the following sections:

1. Introduction and instructions on how to use the catalogs and how to order the programs.
2. A list of corrections and revisions to announced programs (if applicable).
3. A Keyword-in-Context (KWIC) Index.
4. Abstracts of all available programs.
5. A list of deletions (if applicable).

All programs listed in this catalog should be ordered through your local IBM Branch Office. (8 pages)

C20-1620 IBM System/360 Pointers Programming Techniques 50

This manual of System/360 pointers is devoted to examples illustrating various coding techniques. It not only shows the use of some of the features of the assembly language but more importantly points out the power of the System/360 organization in the solution of common problems or parts thereof. Although many of the examples are slanted toward the mathematician, there are those of sufficiently general interest to provide knowledge for the commercially oriented. (29 pages)

C20-1621 IBM System/360 Pointers Storage Utilization Techniques Applied to a Data Reduction Application 50

The purpose of this publication is to illustrate the use of the System/360 instruction set in the treatment of a typical problem arising in the collection and reduction of data gathered, for example, from an experiment, a sequence of measurements, a scanning operation, or the like. After the data reduction problem is defined, solutions by 7094-type methods and by System/360 techniques are described. Finally a comparison of the two solution methods is presented. (8 pages)

C20-1628 IBM System/360 Pointers Utility of 32-Bit Word for the Scientific User 50

This manual of System/360 pointers is intended to show the value of the 32-bit word in many scientific applications. It indicates that in many application areas the probability of adequate significance is high enough to warrant user examination with a worthwhile payoff in reduced job time and time over the 64-bit word. However, this study is intended merely as a guide, and each user should evaluate his own techniques, particularly in the smaller systems, to determine the full value of the 32-bit option for his installation. (33 pages)

C20-1632 An Introduction to PL/I 29

This introduction to PL/I (Programming Language/One) presents some of the features of the language by means of sample programs; it is not intended to teach programming. The examples progress from the trivial to the more complex, and are intended to illustrate some concepts and uses of the language. This student text supersedes *Introduction to NPL*, Form C20-1617. (48 pages)

C20-1635 IBM System/360 Model 40 Operating Techniques 01

This manual describes operator procedures for an IBM 2040 Processing Unit. It is intended to be a handy reference manual for the user to take to an IBM Test Center for preparation of testing materials. IBM 1401

programs that aid in testing S/360 programs are referenced.

Familiarity with the following S&L publications is assumed: *IBM System/360 Basic Programming Support Basic Utilities* (C28-6506); *IBM System/360 Basic Programming Support Operator's Guide* (C28-6557); *IBM System/360 Basic Programming Support Basic Card Assembler* (C28-6503); *IBM System/360 Principles of Operation* (A22-6821).

For information pertaining to operation of the units attachable to System/360 Model 40, refer to the appropriate S&L publication. (26 pages)

C20-1637 PL/I Guide for FORTRAN Users 29

This text is an introductory guide to PL/I, written especially for those who have a working knowledge of FORTRAN II or IV. It does not attempt to cover all the features of the language. It should prepare the student to write a straightforward PL/I program. (40 pages)

C20-1640 Operating System/360 QTAM User's Guide—Message Control Task Specification—Preliminary Edition 50

The Queued Telecommunications Access Method (QTAM) provides macro-instructions for the programming of a communications-based data processing system within the Operating System/360. This book is a compilation of logic flowcharts and explanations designed to instruct the programmer in the coding of a program using QTAM. In a tutorial manner, the reader is led through the necessary decisions and a workbook-like development of the system macro coding on the queued access method level.

The material in this manual corresponds to the level of information in *IBM System/360 Telecommunications: Preliminary Specifications*, C28-6553. (117 pages)

C20-1646 A Programmer's Introduction to the IBM System/360 Architecture, Instructions, and Assembly Language 90

This text is intended to introduce the student to the characteristics of the System/360 and to its instruction set. Many sample programs are used throughout to illustrate specific instructions and programming techniques. It is expected that the student has some knowledge of computing systems.

This publication incorporates but does not obsolete the following IBM System/360 Student Texts:

- Fixed-Point Operations*, C20-1613; *Programming with Base Registers and the USING Instruction*, C20-1614; *Introduction to Assembler Language Programming*, C20-1615; *Decimal Operations*, C20-1616; *Number Systems*, C20-1618; *Logical Operations on Character and Bits*, C20-1623; *Edit, Translate, and Execute Instructions*, C20-1624; *Subroutines and Subprograms*, C20-1625.

The new material in this text includes the chapters on "Architecture," "Automatic Interrupts," and "Floating Point and Advanced Loops in Scientific Applications."

No attempt at completeness is made, and therefore it is expected that the student will refer to the appropriate S&L publications for additional detail. (218 pages)

C20-1649 Introduction to IBM System/360 Direct Access Storage Devices and Organization Methods 90

This text discusses the physical characteristics and capacities of the following System/360 Direct Access Storage Devices: 2301 Drum Storage, 2302 Disk Storage, 2303 Drum Storage, 2311 Disk Storage Drive, 2314 Direct Access Storage Facility, and 2321 Data Cell Drive.

The file organization methods and access methods provided for these devices by the IBM Basic Operating System/360 and the IBM Operating System/360 are also discussed. The uses of direct access storage basic terminology, and the establishment of controls for a direct access system are other topics addressed by this text. Most of the chapters end with student exercises, the answers to which may be found at the end of the manual.

No attempt at completeness is made. Refer to the publications listed in the Bibliography for additional details. (76 pages)

C20-1650 IBM System/360 Model 30 99
1401 Compatibility Mode
Operator's Manual

This manual has been prepared to aid the 1401 operator in transferring to Compatibility Mode Operation on a System/360 Model 30. Only those procedures that differ from their counterparts on the 1401 are discussed. Detailed run book entries are presented for each functional operator action. Procedures can be incorporated into the installation's 1401 run book(s) to provide a single source of operator reference. (56 pages)

C20-1651 A Guide to PL/I for Commercial 95
Programmers

This publication presents those features of PL/I that apply to commercial data processing. It does not restrict itself to a particular aspect of commercial data processing but attempts to discuss all features of PL/I that may be used in the full spectrum of commercial applications.

Because of the many similarities between PL/I and COBOL (Common Business Oriented Language), each chapter in this publication concludes with a section showing comparisons of two languages. The material in this publication is quite comprehensive, but by no means is it a complete description of PL/I nor does it represent the definitive treatment of any one language feature. (69 pages)

C20-1652 IBM System/360 Operating System 37
TESTRAN User's Guide

This document presents guidelines to the effective use of program testing and debugging facilities provided by the test translator (TESTRAN) of Operating System/360.

Included are guidelines to writing the TESTRAN macros, assembling the problem program, executing the program in a test environment, and, finally, deleting TESTRAN from a debugged program. A sample program and its associated TESTRAN output serve as a vehicle for the discussion.

An understanding of the information in the following publications is prerequisite to use of this manual:
IBM Operating System/360 Assembler Language, Form C28-6514

IBM Operating System/360 Linkage Editor, Form C28-6538

IBM Operating System/360 Job Control Language, Form C28-6539

Reference is also made to *IBM Operating System/360 Control Program Services*, Form C28-6541. (28 pages)

C20-1660 IBM System/360 Operating System 50
System Generation Configurator

The System Generation Configurator for the IBM System/360 Operating System consists of a series of flowcharts designed to be used as a guide to the prepara-

tion of the system generation macro-instructions that describe the user's machine configuration and operational characteristics. The information in this text is based on release 3 of the IBM System/360 Operating System as described in *IBM System/360 Operating System: System Generation*, Form C28-6554, as amended by Technical Newsletters N28-2164 and N28-2136. The configurator is intended to be used as a tool when preparing the system generation macros, rather than as a reference manual. Thus, although the configurator represents the best information available at this time, this information is subject to continual revision. Therefore, the user must consult C28-6554 and its most recent technical newsletters for the most complete, up-to-date, accurate information on the system generation macros. Other publications that provide information prerequisite to the proper use of this manual are:

IBM System/360 Operating System: Introduction, Form C28-6534

IBM System/360 Operating System: Concepts and Facilities, Form C28-6535

IBM System/360 Operating System: Storage Estimates, Form C28-6551

IBM System/360 Operating System: System Programmer's Guide, Form C28-6550

IBM System/360 Operating System: Maintenance, Form C27-6918

IBM System/360 Operating System: FORTRAN IV (E) Programmer's Guide, Form C28-6603

(37 pages)

C20-1661 Operating System/360 Utilities 50
User's Guide

The primary purpose of this preliminary edition is to illustrate how the System/360 Operating System utility programs can be used to perform specific operations. Each example presents the job control statements and utility control statements needed to perform the specific operations. The textual material is included primarily to introduce the examples. The reader should refer to *IBM System/360 Operating System; Utilities*, Form C28-6586 and its most recent technical newsletters for specific current details on the utility programs.

Although the examples may not illustrate the most efficient method of performing these operations, each of the sample statement sets has been tested on the initial release version of the IBM System/360 Operating System.

The reader should be familiar with the concepts and terminology introduced in the following prerequisite publications:

IBM System/360 Operating System: Concepts and Facilities, Form C28-6535

IBM System/360 Operating System: Data Management, Form C28-6537

IBM System/360 Operating System: Job Control Language, Form C28-6539

(32 pages)

C20-1663 IBM System/360 Operating System 50
User Libraries

The purpose of this document is to illustrate, by means of a program testing application, the creation, use, and maintenance of user program libraries operating under the IBM System/360 Operating System. The program testing application was chosen for illustrative purposes only and should not be construed as a workable system as it stands. The information in this text is based on information and components available at the time of the initial release of Operating System/360. The use of Assembler E, COBOL E, FORTRAN E, and Linkage Edi-

tor E is assumed. The user should therefore refer to the following texts and their most recent technical newsletters for the most complete, accurate, and up-to-date information:

IBM System/360 Operating System—Utilities, Form C28-6586

IBM System/360 Operating System—System Generation, Form C28-6554

IBM System/360 Operating System—Linkage Editor, Form C28-6538

IBM System/360 Operating System—Job Control Language, Form C28-6539

IBM System/360 Operating System—System Programmer's Guide, Form C28-6550

(58 pages)

C20-1667 Introduction to IBM System/360 95
Architecture

This text is intended to introduce the student to the characteristics of System/360. It is expected that the student has some knowledge of computing systems.

This publication contains the same information as Chapter 1 of *A Programmer's Introduction to the IBM System/360 Architecture, Instructions, and Assembly Language*, Form C20-1646 and obsoletes *IBM System/360 Introductory Notes*, Form C20-1608.

No attempt at completeness has been made and, therefore, it is expected that the student will refer to the appropriate Systems Reference Library (SRL) publications for additional detail. (32 pages)

C20-1676 IBM System/360 Model 30—IBM 95
System/360 Disk Operating System
System Operation Training

This publication must be used together with the publication *IBM System/360 Model 30—IBM System/360 Disk Operating System: System Operation Training Manual Book of Illustrations*, Form C20-1677. They are intended to introduce the student to many of the procedures to be followed when operating the IBM System/360 Model 30. This publication describes the system, various input and output devices, and, through the explanation of sample jobs, illustrates how personnel operate the system in an IBM System/360 Disk Operating System (DOS) stacked-job processing environment.

A student with no prior experience in the data processing field can use this text. In most cases, however, it is expected that the text will be used after the completion of units 1, 4, 5, and 6 of the programmed instruction course *Computing System Fundamentals*, Course Y9897 88. The materials for these units include the following booklets: R29-0241, R29-0242, R29-0244, R29-0245, R29-0246, R29-0247, R29-0248.

This text makes no attempt at completeness. The student should refer to the most recent editions of the publications listed in Appendix D for complete information about the IBM System/360 Model 30 and the various input/output devices discussed in this text (1052 Printer-KeyBoard, 1403 Printer Model N1, 2311 Disk Storage Drive, and 2401 Magnetic Tape Unit). The student should refer to the publications listed in the *IBM System/360 Bibliography*, Form A22-6822 for information about operating procedures for input/output devices not discussed in this text. This text's discussion of DOS is based on release 10 of DOS and concentrates on a stacked-job processing environment rather than on a multiprogramming environment. The student should refer to the latest edition of *IBM System/360 Disk Operating System Operating Guide*, Form C20-5022 for the most complete, up-to-date information about operating procedures in both environments. (56 pages)

- C20-1677 IBM System/360 Model 30—IBM System/360 Disk Operating System—System Operation Training—Book of Illustrations** 95
This publication contains the illustrations for *IBM System/360 Model 30—IBM System/360 Disk Operating System: System Operation Training Manual, Form C20-1676*. (88 pages)
- C20-1678 IBM System/360 Model 40—IBM System/360 Disk Operating System—System Operation Training** 95
This publication must be used together with *IBM System/360 Model 40—IBM System/360 Disk Operating System: System Operation Training Manual Book of Illustrations, Form C20-1679*. They are intended to introduce the student to many of the procedures to be followed when operating the IBM System/360 Model 30. This publication describes the system, various input and output devices, and, through the explanation of sample jobs, illustrates how personnel operate the system in an IBM System/360 Disk Operating System (DOS) stacked-job processing environment.
A student with no prior experience in the data processing field can use this text. In most cases, however, it is expected that the text will be used after the completion of units 1, 4, 5, and 6 of the programmed instruction course *Computing System Fundamentals, Course Y9897 88*. The materials for these units include the following booklets: R29-0241, R29-0242, R29-0244, R29-0245, R29-0246, R29-0247, and R29-0248.
After reading this text, the student may wish to perform a System Exercise (Card Deck R20-4074) on a System/360 Model 40 to gain actual experience in operating input/output devices, interpreting operator messages, and issuing commands.
This text makes no attempt at completeness. The student should refer to the most recent editions of the publications listed in Appendix D for complete information about the IBM System/360 Model 40 and the various input/output devices discussed in this text (1052 Printer-Key-board, 1403 Printer Model N1, 2311 Disk Storage Drive, 2401 Magnetic Tape Unit). The student should refer to the publications listed in the *IBM System/360 Bibliography, Form A22-6822* for information about operating procedures for input/output devices not discussed in this text. This text's discussion of DOS is based on release 10 of DOS and concentrates on a stacked-job processing environment rather than on a multiprogramming environment. The student should refer to the latest edition of *IBM System/360 Disk Operating System Operating Guide, Form C24-5022* for the most complete, up-to-date information about operating procedures in both environments. (60 pages)
- C20-8011 Random Number Generation and Testing** 50
Random sampling—simulation studies—Monte Carlo methods—have been in use for many years. Papers describing various aspects of these topics have appeared in technical journals and textbooks available to a relatively small percentage of computer users. Meanwhile, applications requiring random numbers are becoming more important and more common in business and industry as well as purely scientific areas. This manual gives the mathematical development of the power residue method, outlines computer techniques for implementing it, and also offers brief comments on other methods. An appendix provides programming illustrations for binary and decimal computers. (12 pages)
- C20-8078 Form and Card Design** 50
The first section discusses the steps to take and factors to consider in designing a form. The second section describes the various types of cards and the major phases of card design, illustrates and explains design aids, and presents operating and processing factors that affect card design.
This publication can be used as a guide for individual study or a text for class study. It presupposes a knowledge of IBM Data Processing equipment. (15 pages)
- C20-8152 Flowcharting Techniques** 50
Adherence to standard techniques for the preparation of flowcharts of data processing systems and procedures greatly increases effectiveness of communication between the programmer analyst and the many groups with whom he deals. The manual describes in detail the preparation of system and program flowcharts. The symbols used are those provided by the new *IBM Flowcharting Template, Form X20-8020*, which contains cutouts for all flowchart symbols. The template envelope gives uses for the symbols. The *Flowchart Worksheet, Form X20-8021* is a means of standardizing documentation. It provides space for drawing program flowcharts and contains an area for identification of the job, including application, procedure, date and pagination. (34 pages)
- C21-5000 IBM System/360 Basic Programming Support Programmer's Guide FORTRAN IV, (16K Card)** 25
This publication provides the information necessary for:
1. Translating Card FORTRAN IV source programs into System/360 coding.
2. Executing the resulting System/360 coding.
Included also are techniques and considerations for improving Card FORTRAN IV programs. These are supplementary to the information provided in the language publication, *IBM System/360 Basic Programming Support Specifications, FORTRAN IV (16K Card), Form C21-9040*. The user should read that publication before reading this one. (88 pages)
- C21-9040 IBM System/360 Basic Programming Support Specifications FORTRAN IV, (16K Card)** 25
This publication describes and illustrates the use of the Basic Programming Support Card FORTRAN IV language for the IBM System/360. The reader is presumed to have some knowledge of an existing FORTRAN language.
The Basic Programming Support FORTRAN IV language is a symbolic programming language. It parallels the symbolism and format of mathematical notation. In addition, many programming features and facilities are available for expressing the method of solution of a mathematical problem as a meaningful FORTRAN program. (52 pages)
- C22-6820 IBM System/360 Installation Manual—Physical Planning** 15
This manual contains preliminary physical information for installing IBM System/360 data processing systems, including floor planning and electrical, environmental, and structural requirements. It discusses the physical characteristics of each unit and their effect on installation requirements. Detailed cable and location charts are included, together with illustrations and dimensions, on all cable connectors used in the system. (97 pages)
- C24-3320 IBM System/360 Basic Programming Support Specifications Sort/Merge Programs (8K Tape)** 33
This publication describes the IBM System/360 Basic Programming Support 8K Tape Sort/Merge Programs (one channel and two channel). It contains the following information: 1. Minimum machine requirements for sorting or merging records with this program. 2. Program capabilities. 3. A description of the control statements required to define specific sort or merge operations. 4. A description of the facilities provided for inserting user-written routines into the program. (72 pages)
- C24-3321 IBM System/360 Basic Operating System—Sort/Merge Program** 33
This publication describes the IBM Basic Operating System/360 8K Disk Sort/Merge Program. It contains the following information:
1. Minimum machine requirements for sorting or merging records with this program.
2. Program capabilities.
3. A description of the control statements required to define specific sort or merge operations.
4. A description of the facilities provided for inserting user-written routines into the program (43 pages)
- C24-3337 IBM System/360 Basic Operating System—Report Program Generator Language** 28
This reference publication contains fundamentals of RPG programming and language specifications for the IBM System/360 Operating System, Report Program Generator.
Also included is the job setup information for executing RPG. (204 pages)
- C24-3343 IBM System/360 Basic Programming Support—Autotest Specifications (8K Tape)** 37
This reference publication describes in detail the testing services provided by the Basic Programming Support BPS Tape Autotest (8K Tape) program and the control cards necessary to use the services. Although one of the 8K Tape BPS programs, Autotest requires at least 16K positions of main storage for execution. The following features are described: Autopatch, display, panel, card list, Autotest Output Tape, the Autotest Card-to-Tape utility, the Autotest Tape-to-Printer utility, normal and abnormal dumps, and disaster continue. Special Autotest requirements of Job Control are also presented.
The reader should be familiar with *IBM System/360 Principles of Operation, Form A22-6821* and *IBM System/360 Basic Programming Support Programmer's Guide (8K Tape), Form C24-3354*. (54 pages)
- C24-3345 IBM 1401/1460 Timing Programs for IBM System/360 Basic Programming Support Sort/Merge Programs (8K Tape)** 33
Program Numbers:
1401-LM-078, Version 2 (2401-2404)
1401-LM-080, Version 1 (2415)
This publication contains the specifications and operating procedures for the IBM 1401 and 1460 timing programs used to estimate the amount of time required to sort records with an IBM System/360 Basic Programming Support 1-channel or 2-channel Sort/Merge Program (8K Tape).
The following information is included in this publication:

1. Minimum machine requirements for estimating times with these programs.

2. A description of the user-prepared information cards required to define the proposed sort operation.

3. The procedure to follow for executing the timing programs.

The user of this publication should be familiar with *IBM System/360 Basic Programming Support Sort/Merge Programs (8K Tape)*, Form C24-3320. For a list of associated 1401/1460 publications, see the *IBM 1401/1460 Bibliography*, Form A24-1495. For a list of associated System/360 publications, see the *IBM System/360 Bibliography*, Form A22-6822. (16 pages)

C24-3354 IBM System/360 Basic 20
Programming Support—Basic Tape System Programmer's Guide

This reference publication describes the Basic Tape System and its use. The reader should have a basic knowledge of System/360. The major topics explained are:

Operation with the Control Programs: Supervisor interruption handling, operator communication, the Channel Scheduler, and the communication region; Job Control card formats and symbolic i/o assignment; IPL and the Program Loader.

Input/Output Control System (IOCS): Labels, file and record processing.

Basic Tape System: Job Control with the System Tape, assembly of a Supervisor, Linkage Editor, and System Tape building, maintenance, and service.

Titles and abstracts of related publications are listed in the *IBM System/360 Bibliography*, Form A22-6822. (168 pages)

C24-3355 IBM System/360 Basic 21
Programming Support—Assembler with Input/Output Macros (Tape) Specifications

This reference publication describes the basic programming support tape assembler language and the input/output (i/o) macros supplied by IBM for use in programs written in the assembler language. The general features of the assembler language are described first, followed by a description of each of the three types of assembler language statements: machine-instruction, assembler-instruction, and macro-instruction statements. The description of macro instructions consists of a description of each of the IBM-supplied i/o macros.

The reader should be familiar with the information presented in the publications: *IBM System/360 Principles of Operation*, Form A22-6821; *IBM System/360 Basic Programming Support, Programmer's Guide*, Form C24-3354; and *IBM System/360 Basic Operating System and IBM System/360 Basic Programming Support, Macro Definition Language*, Form C24-3364. For a list of associated publications see the *IBM System/360 Bibliography*, Form A22-6822. (168 pages)

C24-3361 IBM System/360 Basic Operating 21
System—Assembler with Input/Output Macros Specifications

This reference publication describes the assembler language and the input/output (i/o) macros supplied by IBM for use in writing programs for 8K disk-oriented System/360 installations. The general features of the assembler language are described first, followed by a description of each of three types of assembler language statements: machine-instruction, assembler-instruction, and macro-instruction statements. The description of the macro instructions consists of a description of each of the IBM-supplied i/o macros.

The reader should be familiar with the information presented in the publications: *IBM System/360 Principles of Operation*, Form A22-6821; *IBM System/360*

Basic Operating System, Programmer's Guide, Form C24-3372; *IBM System/360 Basic Programming Support, Basic Tape System, Programmer's Guide*, Form C24-3354; and *IBM System/360 Basic Operating System and IBM System/360 Basic Programming Support, Macro Definition Language*, Form C24-3364.

For a list of other associated publications, refer to the *IBM System/360 Bibliography*, A22-6822. (169 pages)

C24-3363 IBM System/360 Basic 32
Programming Support Specifications Utility Programs

This reference publication describes the IBM System/360 Basic Programming Support Utility Programs. The programs described are:

1. Eleven file-to-file programs for transferring a file from input mediums to output mediums.

2. A disk initialization program that prepares from one to five disk packs for use on an IBM 2311 Disk Drive.

3. A program to clear one or more areas of disk storage and establish preformatted tracks.

4. A program that produces a printout of storage and registers.

5. Two multiple utility programs that allow the transfer of preformatted records from multiple input to multiple output devices concurrently.

6. A tape initialization program that will write standard IBM Volume labels on any number of tapes supplied.

7. A tape compare program that compares two files from two or more tapes.

8. A program that establishes an alternate track for a defective track.

The reader should be familiar with the information presented in the publications: *IBM System/360 Basic Programming Support, Programmer's Guide (8K Tape)*, C24-3354; *IBM Basic Operating System/360, Programmer's Guide (8K Disk)*, C24-3372. (80 pages)

C24-3364 IBM System/360 Basic 21
Programming Support, Basic Operating System—Macro Definition Language (8K Tape)

This reference publication describes the macro definition language for the IBM Basic Operating System/360 (8K Disk) and the IBM System/360 Basic Programming Support (8K Tape). The language described in this publication can be used to facilitate the writing of an assembler language program.

The reader should be familiar with the information presented in these publications: *IBM System/360 Principles of Operation*, Form A22-6821; *IBM Basic Operating System/360 Assembler with Input/Output Macros (8K Disk)*, Form C24-3361; and *IBM System/360 Basic Programming Support Assembler with Input/Output Macros (8K Tape)*, Form C24-3355. (45 pages)

C24-3372 IBM System/360 Basic Operating 20
System—Programmer's Guide

This publication describes the 8K disk resident version of the IBM System/360 Basic Operating System. The system is a set of control programs and processing programs provided for smaller configurations of the IBM System/360. Utilizing IBM 2311 Disk Storage for on-line program residence, IBM System/360 Basic Operating System provides stacked-job processing capability, controls all input/output, and provides for continuous operation of all programs run in its environment.

This Programmer's Guide includes descriptions of

the control programs, service programs, and system facilities supported by IBM. A comprehensive introduction gives an over-all picture of the entire system. Detailed information is given on these major topics:

1. Operation with the System Control Programs

2. Using the System Service Programs

3. Data Management

The prerequisite for a thorough understanding of this manual is a basic knowledge of System/360 machine concepts and instructions. Publications which are most closely related to this one are:

IBM System/360 Principles of Operation, Form A22-6821.

IBM System/360, Basic Operating System, Assembler with Input/Output Macros Specifications, Form C24-3361.

IBM System/360 Basic Operating System and IBM System/360 Basic Programming Support: Macro Definition Language, Form C24-3364.

IBM System/360 Basic Operating System, System Generation and Maintenance, Form C24-5060.

Another publication that may be useful is the *Glossary for Information Processing*, Form C20-8089. (174 pages)

C24-3374 IBM System/360 Basic Programming 28
Support Specifications—Report Program Generator (Card)

This reference publication contains complete programming specifications for the IBM System/360 Report Program Generator (Card). Included are the basic functions of RRC for readers with unit record experience who are not familiar with RRC. (110 pages)

C24-3377 IBM System/360 Basic Operating 33
System—IBM 1401/1460 Timing Program for Sort/Merge Program

This publication contains the specifications and operating procedures for the IBM 1401 and 1460 timing program used to estimate the amount of time required to sort records with the IBM Basic Operating System/360 8K Disk Sort/Merge program.

The following information is included in this publication:

1. Minimum machine requirements for estimating times with this program.

2. A description of the user-prepared information cards required to define the proposed sort operation.

3. The procedure to follow for executing the timing program.

The user of this publication should be familiar with *IBM Basic Operating System/360 Sort/Merge Program (8K Disk)*, Form C24-3321. For a list of associated 1401/1460 publications, see *IBM 1401/1460 Bibliography*, Form A24-1495. (13 pages)

C24-3378—IBM System/360 Basic Operating 37
System Specifications—Autotest

This reference publication describes in detail the testing services provided by Disk Autotest in the Basic Operating System—8K Disk and the control cards necessary to use the services. The following services are discussed: autopatch, display, panel, the autotest card to tape (variable) utility, the normal and abnormal end of job dumps including the symbolic dump, testing immediately following an assembly, and separate assemblies and tests. Special autotest requirements for job control are also presented.

The reader should be familiar with *IBM System/360 Principles of Operation*, Form A22-6821; *IBM Basic Operating System/360 Programmer's Guide (8K Disk)*, Form C24-3372; *IBM Basic Operating System/360 Utility Programs (8K Disk)*, Form C24-3409; and *IBM Basic Operating System/360 Assembler with Input/Output Macros (8K Disk)*, Form C24-3361. (110 pages)

- C24-3387—IBM System/360 Basic Operating System Specifications—Report Program Generator Language** 28
- This reference publication contains fundamentals of rrc programming and language specifications for the IBM Basic Operating System/360 Report Program Generator. For information on the Basic Operating System that is beyond the purpose of this language publication, see *IBM Basic Operating System/360 Programmer's Guide (8K Disk)*, Form C24-3372. (153 pages)
- C24-3391 IBM System/360 Basic Programming Support Operating Guide—Basic Tape System** 20
- This publication discusses briefly the overall concepts of using the various programs in the Basic Tape System. It describes the function and operation of the Control Programs used in conjunction with the IBM-supplied system tape or user's object program. A section listing error messages provided by the programs or routines is included. System operator communication is discussed, and a section of reference charts for System/360 coding is also included.
- Each individual program section gives the specific operating procedure for that particular program, supplying information such as: description of card decks, and procedures to be followed.
- Refer to the SRL publication, *IBM System/360 Model 30 Operator's Guide*, Form A24-3373, for information about the operation of the System/360. (91 pages)
- C24-3392 IBM System/360 Basic Programming Support Operating Guide—Direct Access Storage Device Utility Programs** 32
- This reference publication contains the guidelines to operate the following file-to-file utility programs:
- Tape-to-Tape Program 360P-UT-054
 - Tape-to-Card Program 360P-UT-053
 - Tape-to-Printer Program 360P-UT-052
 - Card-to-Tape Program 360P-UT-051
 - Card-to-Printer/Punch Program 360P-UT-050.
- These programs can be ordered individually or by group program number.
- The reader should be familiar with the IBM System/360 publications: *IBM System/360 Basic Programming Support Utility Programs*, Form C24-3363; *IBM System/360 Principles of Operation*, Form A22-6821; and other device manuals associated with his device configuration. (17 pages)
- C24-3396 IBM System/360 Basic Programming Support Universal Character Set Utility Program Operating Guide** 32
- Program Number: 360P-UT-048*
- This reference publication contains the Operating Guide for the Universal Character Set Utility Program used to load the read/write storage units in the IBM 2821 Control Unit. Included in the manual are a description of the vcs program deck, control cards, system and deck preparation, error waits and options, and operating instructions. An Appendix contains related information including standard train/chain arrangements and the Extended Binary Coded Decimal Interchange Code.
- The user of this publication should be familiar with *IBM 2821 Control Unit*, Form A24-3312 and *IBM 1403 Printer*, Form A24-3073. For a list of associated System/360 publications, see the *IBM System/360 Bibliography*, Form A22-6822. (24 pages)
- C24-3398 IBM System/360 Basic Programming Support Input/Output 1412/1419 Specifications and Operating Guide** 30
- Program Number: 360P-IO-058*
- This reference publication describes programming specifications and operating procedures for the Input/Output control program supplied by IBM for System/360 applications using the IBM 1412 and 1419 Magnetic Character Readers. Detailed information is given on the programming required for all i/o operations on these devices as well as for other services of the control program. Also included are operator instructions and diagnostic messages.
- The reader should be familiar with the following publications:
- IBM System/360 Principles of Operation*, Form A22-6821
 - IBM System/360 Basic Programming Support, Basic Assembler Language*, Form C28-6503
 - IBM 1412 Magnetic Character Reader*, Form A24-1421, or
 - IBM 1219 Reader Sorter, IBM 1419 Magnetic Character Reader*, Form A24-1499. (*IBM 1419 Model 32 Magnetic Character Reader*, Forms A19-0004 and A19-0023.)
 - IBM System/360 Model 30 Operator's Guide*, Form A24-3373
- For information pertaining to Job Control cards, refer to either:
- IBM System/360 Basic Programming Support, Basic Tape System, Programmer's Guide*, Form C24-3354, or
 - IBM System/360 Basic Operating System Programmer's Guide*, Form C24-3372.
- Other related IBM publications are referenced by form number and briefly described in *IBM System/360 Bibliography*, Form A22-6822. (56 pages)
- C24-3408 IBM System/360 Basic Programming Support Specifications Input/Output (1231 N1) Program** 30
- This reference publication contains a description of the input/output program for the IBM 1231 N1 Optical Mark Page Reader, and information concerning the instructions required to properly use the 1231 N1 as an input device to an IBM System/360.
- The reader should be familiar with the information presented in these publications: *IBM System/360 Principles of Operation*, Form A22-6821, *IBM System/360 Basic Programming Support, Programmer's Guide (8K Tape)*, Form C24-3354, and *IBM Basic Operating System/360 Programmer's Guide (8K Disk)*, Form C24-3372. The publication *IBM 1231 N1 Optical Mark Page Reader*, Form A21-9031, contains information that will be helpful to the 1231 N1 programmer. (32 pages)
- C24-3409 IBM System/360 Basic Operating System Specifications—Utility Programs** 32
- This reference publication describes the IBM Basic Operating System/360 Utility programs. The programs described are:
1. Eleven file-to-file programs for transferring a file from input mediums to output mediums.
 2. A program to clear one or more areas of disk storage and establish pre-formatted tracks.
- The reader should be familiar with the information presented in the publication *IBM Basic Operating System/360 Programmer's Guide (8 Disk)*, Form C24-3372. (52 pages)
- C24-3413 IBM System/360 Basic Programming Support Operating Guide—Sort/Merge Programs (8K Tape)** 33
- Programs: one-channel—360P-SM-043; two-channel—360-SM-044.
- This reference publication contains the following information: 1. The minimum machine requirements for sorting or merging records with the 8K Tape Sort/Merge Program, 2. A description of the program packages, 3. A description of the procedure to follow when modifying the program decks, 4. The instructions for running on 8K Tape Sort/Merge Program, 5. The programmed messages that can occur while the program is being run. (26 pages)
- C24-3414 IBM System/360 Disk Operating System, Tape Operating System Specifications—Assembler Language** 21
- This reference publication contains specifications for the IBM Basic Operating System/360 Assembler Language (16K Disk/Tape) (including macro instructions and conditional assembly facilities).
- The assembler language is a symbolic programming language used to write programs for the IBM System/360. The language provides a convenient means for representing the machine instructions and related data necessary to program the IBM System/360. The IBM Basic Operating System/360 Assembler Program processes the language and provides auxiliary functions useful in the preparation and documentation of a program, and includes facilities for processing macro instructions.
- Part 1 of this publication is an introduction to the assembler language. Part 2 describes the basic functions of the assembler language. Part 3 describes the conditional assembly and macro facilities in the assembler language. (144 pages)
- C24-3417 IBM System/360 Basic Programming Support Operating Guide—Autotest** 37
- This reference publication contains information the operator must know to test an object program using the 8K Tape Autotest Program. Autotest can be executed only on a machine with a minimum of 16K positions of main storage.
- The reader should be familiar with the IBM System/360 publications: *IBM System/360 Basic Programming Support Autotest (8K Tape)*, Form C24-3343; *IBM System/360 Basic Programming Support Operating Guide: Basic Tape System (8K)*, Form C24-3391; and *IBM System/360 Model 30 Operators Guide*, Form A24-3373. (16 pages)
- C24-3418 IBM System/360 Basic Programming Support Report Program Generator Language Specifications (8K Tape)** 28
- This reference publication contains complete programming specifications for the IBM System/360 Report Program Generator (8K Tape). Included are the basic functions of rrc for readers with tape experience who are not familiar with rrc. For more detailed information regarding the generation of system tapes and input/output facilities provided, refer to the publication *IBM System/360 Basic Programming Support Programmer's Guide (8K Tape)*, Form C24-3354. (137 pages)

C24-3420 IBM System/360 Basic Programming Support and IBM Basic Operating System/360—Programming Systems Summary 20

This publication describes the general function, capabilities, and application of the programming support of IBM System/360 at the 8K and 16K levels. At these levels of support, Basic Operating System/360 consists of a comprehensive set of commercial, scientific, and process control programming aids operating under supervisory control and coordination of an integrated control program. The IBM System/360 Basic Programming Support consists of programs and programming aids (distinct from Basic Operating System/360 or Operating System/360) providing programming support for small card or tape configurations of IBM System/360. (36 pages)

C24-3427 IBM System/360 Disk Operating System Data Management Concepts 30

This reference publication contains a discussion of the data management facilities inherent in the Disk Operating System. It describes the file formats, labeling procedures, and access methods available with the system. There is also a general section describing the design of the direct-access storage devices supported.

The following publications are recommended as prerequisite readings: *IBM System/360 Principles of Operation*, Form A22-6821, and *IBM System/360 Disk Operating System, System Control and System Service Programs*, Form C24-5036.

Other related publications are: *IBM System/360 Disk Operating System Supervisor and Input/Output Macros*, Form C24-5037, *IBM System/360 Disk and Tape Operating Systems Assembler Specifications*, Form C24-3414, and *Glossary for Information Processing*, Form C20-8089.

For a List of associated System/360 publications, refer to *IBM System/360 Bibliography*, Form A22-6822. (68 pages)

C24-3430 IBM System/360 Tape Operating System—Data Management Concepts 20

This reference publication contains a discussion of the data management facilities inherent in the 16K Tape Basic Operating System. It describes the Input/Output Control System (iocs), the file formats, and the labeling procedures available with the system.

The following publications are recommended as prerequisite readings: *IBM System/360 Principles of Operation*, Form A22-6821, and *IBM Basic Operating System/360 System Control and System Service Program (16K Tape)*, Form C24-3431.

Related publications are: *IBM Basic Operating System/360 Supervisor and Input/Output Macros (16K Tape)*, Form C24-3432, *IBM Basic Operating System/360 Assembler Language (16K Disk/Tape)*, Form C24-3414, and *Glossary for Information Processing*, Form C20-8089. (36 pages)

C24-3433 IBM System/360 Disk and Tape Operating Systems COBOL Language Specifications 24

COBOL (Common Business Oriented Language) is similar to English. It was developed by the conference of Data Systems Languages (CODASYL). COBOL provides a convenient method of coding programs to handle commercial data processing problems.

This publication provides the programmer with rules for writing programs in COBOL for IBM System/360 Disk and Tape Operating Systems. Users unacquainted with COBOL should first familiarize themselves with the publication: *COBOL Program Funda-*

mentals, Form R29-0205, and its reference handbook, Form R29-0200.

The titles and abstracts of related publications are listed in the *IBM System/360 Bibliography*, Form A22-6822. (140 pages)

C24-3437 IBM System/360 Basic Programming Support Specifications Input/Output (1418/1428) Program 30

This publication describes the input/output 1418/1428 (i/o 1418/1428) supplied by IBM for System/360 application using the IBM 1418 or 1428 Optical Character Readers. The i/o 1418/1428 program provides complete interruption-handling capability, controls all input/output, and controls a document buffer for maximum throughput.

The reader should be familiar with the information presented in the following publications: *IBM System/360 Principles of Operation*, Form A22-6821; *IBM System/360 Basic Programming Support, Basic Assembler Language*, Form C28-6503; *IBM 1418 Optical Reader*, *IBM 1428 Alphameric Optical Reader*, Form A24-1473. (40 pages)

C24-3438 IBM System/360 Disk and Tape Operating Systems Tape Sort/Merge Program—Specifications 33

Program Numbers:
360M-SM-400
360N-SM-400

This publication explains the following:

1. Minimum machine requirements.
2. Program capabilities.
3. Required control statements.
4. User-written routines.

The reader should be familiar with these publications:

IBM System/360 Tape Operating System, Data Management Concepts, Form C24-3430

IBM 1401/1460 Timing Programs for IBM System/360 Disk and Tape Operating System, Tape Sort/Merge Program, Form C24-3439

IBM System/360 Tape Operating System, Performance Estimates, Form C24-5020

IBM System/360 Tape Operating System, System Control and System Service Programs, Form C24-3431

(65 pages)

C24-3439 IBM 1401/1460 Timing Program for IBM System/360 Disk and Tape Operating Systems Tape Sort/Merge Program 33

Program Numbers:
1401-LM-010 (2401-2404)
1401-LM-012 (2415)

This publication contains the specifications and operating procedures for the IBM 1401 and 1460 timing program used to estimate the amount of time required to sort tape records with the IBM System/360 Disk Operating System Tape Sort/Merge program or the IBM System/360 Tape Operating System Tape Sort/Merge Program.

The following information is included in this publication:

1. Minimum machine requirements for estimating times with these programs.
2. A description of the user-prepared information cards required to define the proposed sort operation.
3. The procedure to follow for executing the timing program.

The user of this publication should be familiar with *IBM System/360 Disk and Tape Operating Systems,*

Tape Sort/Merge Program Specifications, Form C24-3438. For a list of associated 1401/1460 publications, see the *IBM 1401/1460 Bibliography*, Form A24-1495. For a list of associated System/360 publications, see the *IBM System/360 Bibliography*, Form A22-6822. (16 pages)

C24-3441 IBM System/360 Tape Operating System—Autotest Specifications 37

This reference publication describes the testing services provided by the IBM System/360 Tape Operating System Autotest program. Programmer-oriented diagnostic messages are included in this publication, as well as formats and examples of control cards for both job control and Autotest.

Refer to the following IBM System/360 publications for related information:

Principles of Operation, Form A22-6821

Disk and Tape Operating Systems Assembler Specifications, Form C24-3414

Disk and Tape Operating Systems Utility Programs Specifications, Form C24-3465

Tape Operating System, System Control and System Service Programs, Form C24-3431

Tape Operating System Operating Guide, Form C24-5021

These and other IBM publications, along with a brief description of the content of each, are listed in the *IBM System/360 Bibliography*, Form A22-6822. (52 pages)

C24-3444 IBM System/360 Disk Operating System Specifications—Sort/Merge Program 33

This publication describes the IBM Basic Operating System/360 16K Disk Sort/Merge Program, and contains the following information: 1. Minimum machine requirements for sorting or merging records with this program, 2. Program capabilities, 3. A description of the control statements required to define specific sort or merge operations, 4. A description of the facilities provided for inserting user-written routines into the program.

The following publications are prerequisites: *IBM Basic Operating System/360 Data Management Concepts (16K Disk)*, Form C24-3427, *IBM Basic Operating System/360 System Control and System Service Programs (16K Disk)*, Form C24-3428, and *IBM Basic Operating System/360 Supervisor and Input/Output Macros (16K Disk)*, Form C24-3429. (44 pages)

C24-3445 IBM System/360 Disk Operating System—IBM 1401/1460 Timing Program for Disk Sort/Merge Program 33

Program Number 360B-SM-451—This publication contains the specifications and operating procedures for the IBM 1401 and 1460 timing program used to estimate the amount of time required to sort records with the IBM Basic Operating System/360 16K Disk Sort/Merge program.

The following information is included in this publication: 1. Minimum machine requirements for estimating times with this program, 2. A description of the user-prepared information cards required to define the proposed sort operation, 3. The procedure to follow for executing the timing program.

The user of this publication should be familiar with *IBM Basic Operating System/360 Specifications Sort/Merge Program (16K Disk)*, C24-3444. For a list of associated 1401/1460 publications, see *IBM 1401/1460 Bibliography*, A24-1495. (16 pages)

C24-3450 IBM System/360 Basic Operating System Operating Guide—Control Programs and Assembler 20

Program Numbers: Basic Control Program 360B-CL-302; Consecutive Processing Macros 360-IO-303; Indexed Sequential File—Management Systems (ISDMS) Macros 360B-IO-304; Direct Access Method (DAM) Macros 360B-IO-305; Assembler 360B-AS-309.

This publication is divided into four parts: Part I explains briefly the functions of the programs in the basic operating system. Part II gives operating procedures for the Basic Operating System/360 (8K Disk) control and service programs and Assembler. Procedures for generating a resident system, and obtaining and using system backup are included, as well as a section on system/operator communication.

Part III presents the formats of Job Control, Linkage Editor, and Library program control cards. Part IV contains a complete list of error messages issued by the control programs and Assembler.

A series of appendices include reference charts for System/360 code conversion and a table of IBM-supplied program and macro names.

For information about the operation of the System/360, see *IBM System/360 Model 30 Operator's Guide*, Form A24-3373. Operating guides for other programs available in the Basic Operating System/360 (8K Disk) are in separate publications. (128 pages)

C24-3452 IBM System/360 Basic Operating System Operating Guide—Autotest 37

Program Number 360B-PT-360—This reference publication contains the operator information necessary to test an object program using the 8K Disk Autotest program. Autotest can be executed only on a machine with a minimum of 16K positions of main storage.

The reader must be familiar with the operating procedures described in *IBM Basic Operating System/360 Operating Guide: Control Programs and Assembler* (8K Disk), Form C24-3450. (12 pages)

C24-3453 IBM System/360 Basic Operating System Operating Guide—Report Program Generator 28

This publication contains operating procedures for programs written in the IBM Basic Operating System/360 Report Program Generator (8K Disk) language. It should be used with the *IBM Basic Operating System/360 Specifications: Report Program Generator* (8K Disk), Form C24-3387, which contains information concerning machine requirements, language specifications, and input/output file processing.

The publication *IBM Basic Operating System/360 Operating Guide: Control Programs and Assembler* (8K Disk), Form C24-3450, is a prerequisite. (2 pages)

C24-3454 IBM System/360 Basic Operating System Operating Guide Sort/Merge Program 33

Program Number 360B-SM-308—This publication describes the operating procedures for the IBM Basic Operating System/360 8K Disk Sort/Merge Program. It contains this information: 1. A description of the procedure to follow when cataloging the 8K Disk Sort/Merge Program and user routines into the disk-resident core-image library. 2. The operating considerations for an 8K Disk Sort/Merge Program. 3. The programmed messages that may be printed during a program run.

The reader is assumed to have a working knowledge of the System/360. The publication *IBM Basic Operating System/360 Operating Guide: Control Programs and Assembler* (8K Disk), Form C24-3450, is a prerequisite. (24 pages)

C24-3455 IBM System/360 Basic Operating System Operating Guide Utility Programs 32

This reference publication contains the guidelines to operate the following groups of utility programs: Group 1—Program Number 360B-UT-300—Card-to-Disk Program, Card-to-Printer and/or Punch Program, Disk-to-Card Program, Disk-to-Disk Program, Disk-to-Printer Program, Clear Disk Program; Group 2—Program Number 360B-UT-301—Card-to-Tape Program, Disk-to-Tape Program, Tape-to-Card Program, Tape-to-Disk Program, Tape-to-Printer Program, Tape-to-Tape Program.

These programs are ordered by the above group program numbers and are distributed on the disk pack.

The reader should be familiar with these publications: *IBM Basic Operating System/360 Operating Guide: Control Programs and Assembler* (8K Disk), Form C24-3350, *IBM Basic Operating System/360 Specifications Utility Programs*, Form C24-3409; *IBM Basic Operating System/360 Programmer's Guide* (8K Disk), Form C24-3372; *IBM Basic Operating System/360 Assembler with Input/Output Macros* (8K Disk), Form C24-3361; and other manuals associated with the device configuration. (20 pages)

C24-3460 IBM System/360 Basic Programming Support Operating Guide—Input/Output 1231-N1 Program 30

This reference publication describes operating procedures for the Input/Output 1231 N1 program. This program is used with the IBM 1231 N1 Optical Mark Page Reader attached to IBM System/360 Model 30 or 40.

The user should be familiar with these publications: *IBM System/360 Basic Programming Support Specifications: Input/Output 1231 N1 Program*, Form C24-3408; *IBM System/360 Model 30 Operator's Guide*, Form A24-3373.

Information on Job Control cards are in *IBM System/360 Basic Programming Support Programmer's Guide* (8K Tape), Form C24-3354; *IBM Basic Operating System/360 Programmer's Guide* (8K Disk), Form C24-3372. (24 pages)

C24-3464 IBM System/360 Basic Programming Support Operating Guide—Report Program Generator (Card) 28

This reference publication describes the operating procedures for the IBM System/360 Basic Programming Support, Report Program Generator (Card). It contains this information:

1. A description of the procedure to follow when using the Card rpg program to produce a variety of business reports.
2. The operating considerations for the Card rpg program.
3. The programmed messages that may be printed or displayed during generation or execution of the object program.

The publication *IBM System/360 Model 30 Operator's Guide*, Form A24-3373, is a prerequisite. (28 pages)

C24-3465 IBM System/360 Disk Operating System, Tape Operating System Specifications—Utility Programs 32

This reference publication describes the IBM Basic Operating System/360 utility programs. The programs described are: 1. Seventeen file-to-file programs for transferring a file from input mediums to output medi-

ums. 2. A program to clear one or more areas of disk storage and establish preformatted tracks. 3. A program to clear one or more areas of data cells and establish preformatted tracks. 4. A program that compares two files from two or more tapes to ensure that the files are identical.

The reader should be familiar with these IBM Basic Operating System/360 publications: *IBM Basic Operating System/360 Data Management Concepts* (16K Tape), Form C24-3430; *IBM Basic Operating System/360 Data Management Concepts* (16K Disk), Form C24-3427; *IBM Basic Operating System/360 System Control and System Service Programs* (16K Tape), Form C24-3431; *IBM Basic Operating System/360 System Control and System Service Programs* (16K Disk), Form C24-3428. (84 pages)

C24-5015 IBM System/360 Tape Operating System—System Generation and Maintenance 31

This reference publication contains specifications and operating procedures used to generate an installation-tailored Tape Operating System. Supervisor macro instructions are used to describe facilities that are required within the system. This publication also contains sample problems that can be used to test the generated system.

The following publications are useful references: *IBM System/360 Tape Operating System, System Control and System Service Programs*, Form C24-5034.

IBM System/360 Tape Operating System, Supervisor and Input/Output Macros, Form C24-5035. *IBM System/360 Tape Operating System, Performance Estimates*, Form C24-5020.

IBM System/360 Disk and Tape Operating Systems, Utility Programs Specifications, Form C24-3465.

IBM System/360 Tape Operating System, Operating Guide, Form C24-5021.

IBM System/360 Basic Programming Support, Card and Tape Utility Programs Specifications, Form C24-5026.

For titles and abstracts of other associated publications, see the *IBM System/360 Bibliography*, Form A22-6822. (116 pages)

C24-5020 IBM System/360 Tape Operating System Performance Estimates 20

This reference publication contains main storage, external storage, and timing estimates for the Tape Operating System. The storage requirements are not sensitive to system configuration, but the timing estimates are. Therefore, representative system configurations are used to illustrate timing variances.

The timing discussion includes estimates for Job Control, Linkage Editor, Assembler, COBOL, FORTRAN, PL/I, and RPG. Time requirements for processing ATTN commands, foreground program initiation, and the task selection mechanism are included. Examples illustrate the use of the timing data to calculate total job time.

Related publications are:

IBM System/360 Tape Operating System, System Control and System Service Programs, Form C24-5034.

IBM System/360 Tape Operating System, Supervisor and Input/Output Macros, Form C24-5035. *IBM System/360 Tape Operating System, System Generation and Maintenance*, Form C24-5015.

For titles and abstracts of other associated publications, see the *IBM System/360 Bibliography*, Form A22-6822. (68 pages)

C24-5021 IBM System/360 Tape Operating System Operating Guide 20

This publication describes the procedures to be followed when executing jobs in the IBM System/360 Basic Operating System (16K Tape) environment. It provides a concise description of the functions the operator must perform to include initiating system operation and any required communication between the system and the operator. A section listing error messages provided by the programs is included.

Refer to the SRL publication *IBM System/360 Model 30 Operator's Guide*, Form A24-3373, for information concerning the operation of the System/360. (68 pages)

C24-5022 IBM System/360 Disk Operating System—Operating Guide 20

Program Numbers:

<i>System Control and Basic IOCS</i>	360N-CL-453
<i>Consecutive Disk IOCS</i>	360N-IO-455
<i>Consecutive Tape IOCS</i>	360N-IO-456
<i>Direct Access Method (DAM) Macros</i>	360N-IO-454
<i>Indexed Sequential File Management System (ISFMS) Macros</i>	360N-IO-457
<i>Consecutive Paper Tape IOCS</i>	360N-IO-458
<i>Group 1 Utilities (Disk and Unit Record)</i>	360N-UT-461
<i>Group 2 Utilities (Tape)</i>	360N-UT-462
<i>Group 3 Utilities (Data Cell)</i>	360N-UT-463
<i>Sort/Merge (Disk)</i>	360N-SM-450
<i>Sort/Merge (Tape)</i>	360N-SM-400
<i>Assembler—Basic Modules</i>	360N-AS-465
<i>Assembler—Disk Work File Modules</i>	360N-AS-466
<i>Assembler—Tape Work File Modules</i>	360N-AS-467
<i>Report Program Generator</i>	360N-RG-460
<i>COBOL</i>	360N-CB-452
<i>COBOL DASD Macros</i>	360N-CB-468
<i>FORTRAN IV</i>	360N-FO-451

This publication describes the procedures to be followed when jobs are executed in the IBM System/360 Disk Operating System environment. It describes the functions the operator must perform to initiate system operation and to communicate with the system. A listing of error messages issued by the Disk Operating System programs is included.

For a description of the concepts of the Disk Operating System, see *IBM System/360 Disk and Tape Operating Systems Concepts and Facilities*, Form C24-5030. Information concerning the operation of the System/360 can be found in *IBM System/360 Model 30 Operator's Guide*, Form A24-3373, or a corresponding publication. (78 pages)

C24-5023 IBM System/360 Basic Programming Support Operating Guide —Input/Output 1418/1428 Program 30

This reference publication describes operating procedures for the Input/Output 1418/1428 program. The i/o 1418/1428 program is used with either an IBM 1418 Optical Character Reader or an IBM 1428 Alphameric Optical Reader attached to an IBM System/360 Model 30 or 40. The user should be familiar with the following IBM publications: *IBM System/360 Basic Programming Support Specifications: Input/Output 1418/1428 Program*, Form C24-3437; *IBM System/360 Model 30 Operator's Guide*, Form A24-3373.

For information pertaining to job control cards, refer to either publication: *IBM System/360 Basic Programming Support: Programmer's Guide (8K Tape)*, Form C24-3354 or *IBM System/360 Basic Operating System: Programmer's Guide (8K Disk)*, Form C24-3372. (20 pages)

C24-5024 IBM System/360 Basic Operating System Operating Guide—Operator Messages (8K Disk) 20

This publication lists, in numeric and alphabetic order, all messages issued to the operator by the programs of the IBM System/360 Basic Operating System (8K Disk). (68 pages)

C24-5025 IBM System/360 Disk and Tape Operating Systems—COBOL Programmer's Guide 24

This publication is designed to aid the COBOL programmer. Its purpose is to provide guidance and examples in the techniques of COBOL programming in the Disk and Tape Operating Systems, and to expose the user to the components of the Control Program and facilities of IBM System/360 Disk and Tape Operating Systems.

The prerequisites for a thorough understanding of the COBOL language are:

- IBM System/360 Disk and Tape Operating Systems COBOL Language Specifications*, Form C24-3433
- Publications closely related to this one are:
 - IBM System/360 Disk Operating System, System Control and System Service Programs*, Form C24-3428
 - IBM System/360 Tape Operating System, System Control and System Service Programs*, Form C24-3431
 - IBM System/360 Disk Operating System, Supervisor and Input/Output Macros*, Form C24-3429
 - IBM System/360 Disk Operating System, Supervisor and Input/Output Macros*, Form C24-3432
 - IBM System/360 Disk Operating System, Data Management Concepts*, Form C24-3427
 - IBM System/360 Tape Operating System, Data Management Concepts*, Form C24-3430
 - IBM System/360 Disk Operating System, System Generation and Maintenance*, Form C24-5033
 - IBM System/360 Tape Operating System, System Generation and Maintenance*, Form C24-5015
 - IBM System/360 Principles of Operation*, Form A22-6821

(160 pages)

C24-5026 IBM System/360 Basic Programming Support Specifications—Card and Tape Utility Programs 32

This reference publication describes the IBM System/360 Basic Programming Support Utility Programs. The programs described are:

Card to Printer and/or Punch	360P-UT-050, Version 2
Card to Tape	360P-UT-051, Version 2
Tape to Card	360P-UT-053, Version 2
Tape to Printer	360P-UT-052, Version 2
Tape to Tape	360P-UT-054, Version 2

The preceding programs can be received by ordering individually numbered program packages. Each program is shipped as a complete entity, in object form, ready to perform its function.

The reader should be familiar with the information presented in the publications: *IBM System/360 Basic Programming Support, Programmer's Guide (8K Tape)*, C24-3354; *IBM System/360 Basic Operating System: Programmer's Guide: Card and Utility Programs*, Form C24-5027. (48 pages)

C24-5027 IBM System/360 Basic Programming Support Operating Guide—Card and Tape Utility Programs 32

This reference publication contains the guidelines to operate the following utility programs:

Card to Printer and/or Punch	360P-UT-050, Version 2
Card to Tape	360P-UT-051, Version 2

Tape to Card	360P-UT-053, Version 2
Tape to Printer	360P-UT-052, Version 2
Tape to Tape	360P-UT-054, Version 2

These programs can be received by ordering individually numbered program packages. Each program is shipped as a complete entity, in object form, ready to perform its function.

The reader should be familiar with these IBM System/360 publications: *IBM System/360 Basic Programming Support Specifications: Card and Tape Utility Programs*, Form C24-5026; *IBM System/360 Principles of Operation*, Form A22-6821; and other manuals associated with his device configuration. (20 pages)

C24-5029 IBM System/360 Operating System COBOL (E) Programmer's Guide 24

This reference publication describes how to compile, linkage edit, and execute a COBOL (E-Level Subset) program. It also describes the output of compilation and execution, how to make optimal use of the compiler and a load module, and compiler and load module restrictions.

The corequisite to this publication is *IBM System/360 Operating System: COBOL Language*, Form C28-6516.

Other publications related to this one are: *IBM System/360 Principles of Operation*, Form A22-6821.

IBM System/360 Operating System: Control Program Services, Form C28-6541.

IBM System/360 Operating System: Job Control Language, Form C28-6539.

IBM System/360 Operating System: Utilities, Form C28-6586.

IBM System/360 Operating System: Linkage Editor, Form C28-6538.

IBM System/360 Operating System: Control Program Messages and Completion Codes, Form C28-6608.

For a list of other associated System/360 publications, see the *IBM System/360 Bibliography*, Form A22-6822. (154 pages)

C24-5030 IBM System/360 Disk and Tape Operating Systems—Concepts and Facilities 20

This publication describes the concepts of Disk and Tape Operating Systems and guides the planner in the use of its various facilities. It describes the components in the Disk and Tape Operating Systems and explains the function of each. The last section of the publication discusses the design, preparation and execution of programs.

A suggested prerequisite reading is *IBM System/360 Basic Programming Support, Basic Operating System, Tape Operating System, and Disk Operating System, Programming Systems Summary*, Form C24-3420. For examples of foreground program initiation, see *IBM System/360 Disk Operating System, Operating Guide*, Form C24-5022; and *IBM System/360 Tape Operating System, Operating Guide*, Form C24-5021.

For titles and abstracts of other associated publications, see the *IBM System/360 Bibliography*, Form A22-6822. (28 pages)

C24-5032 IBM System/360 Disk Operating System—Performance Estimates 20

This reference publication contains main storage, external storage, and timing estimates for the Disk Operating System. The storage requirements are not sensitive to system configuration, but the timing estimates are. Therefore, representative system configurations are used to illustrate timing variances.

The timing discussion includes estimates for Job Control, Linkage Editor, Assembler, COBOL, PL/I, FORTRAN, and RPG. Time requirements for processing ATTN routines, foreground program initiation, and the task selection mechanism are included. Examples illustrate the use of the timing data to calculate total job time.

Related publications are:

IBM System/360 Disk Operating System, System Control and System Service Programs, Form C24-5036

IBM System/360 Disk Operating System, Supervisor and Input/Output Macros, Form C24-5037

IBM System/360 Disk Operating System, System Generation and Maintenance, Form C24-5033

For titles and abstracts of other associated publications see the *IBM System/360 Bibliography*, Form A22-6822. (80 pages)

C24-5033 IBM System/360 Disk Operating System—System Generation and Maintenance 31

This reference publication contains specifications and operating procedures used to generate an installation-tailored Disk Operating System. Supervisor macro instructions are used to describe facilities that are required within the system.

The following publications are useful references:

IBM System/360 Disk Operating System, System Control and System Service Programs, Form C24-3428

IBM System/360 Disk Operating System, Supervisor and Input/Output Macros, Form C24-3429

IBM System/360 Disk Operating System Performance Estimates, Form C24-5032

IBM System/360 Tape and Disk Operating Systems Utility Programs, Form C24-3465

IBM System/360 Basic Programming Support, DASD Utility Programs Specifications, Form C24-3363

IBM System/360 Basic Programming Support, DASD Utility Programs Operating Guide, Form C24-3392 (132 pages)

C24-5034 IBM System/360 Tape Operating System Extended—System Control and System Service Programs 36

This reference publication describes a future version of the IBM System/360 Tape Operating System. The system is a set of control programs and processing programs provided for the IBM System/360. Using IBM 2400-series magnetic tape units for on-line program residence, IBM System/360 Tape Operating System Extended provides stacked-job processing capability, multi-programming capability, controls all input/output, and provides for continuous operation of all programs run in its environment. Detailed information is given in this publication on these major topics:

1. Operation with the System Control Program:

- a. System Organization
- b. Supervisor Functions
- c. Job Control Program.

2. Using the System Service Programs:

- a. Linkage Editor
- b. Librarian.

The prerequisite for a thorough understanding of this publication is a basic knowledge of System/360 machine concepts. The publications most closely related to this one are:

IBM System/360 Principles of Operation, Form A22-6821

IBM System/360 Tape Operating System: Data Management Concepts, Form C24-3430

IBM System/360 Tape Operating System Extended:

Supervisor and Input/Output Macros, Form C24-5035

IBM System/360 Disk and Tape Operating Systems: Assembler Specifications, Form C24-3414

(101 pages)

C24-5035 IBM System/360 Tape Operating System Extended—Supervisor and Input/Output Macros 30

This reference publication contains planning information about the Input/Output Control System macro instructions and the Supervisor macro instructions for use with the IBM System/360 Tape Operating System Extended (TOS). IBM publications that provide related information are:

IBM System/360 Principles of Operation, Form A22-6821

IBM System/360 Tape Operating System, Data Management Concepts, Form C24-3430

IBM System/360 Tape Operating System Extended, System Control and System Service Programs, Form C24-5034

IBM System/360 Disk and Tape Operating System, Assembler Specifications, Form C24-3414

(115 pages)

C24-5036 IBM System/360 Disk Operating System Extended—System Control and System Service Programs 36

This publication describes a future version of the IBM System/360 Disk Operating System. The system is a set of control programs and processing programs provided for IBM System/360. Using IBM 2311 Disk Storage for on-line program residence, the IBM System/360 Disk Operating System Extended provides stacked-job processing capability, multiprogramming and telecommunications capability, controls all input/output, and provides for continuous operation of all programs run in its environment. Detailed information is given in this publication on these major topics:

1. Operation with the System Control Program:

- a. System Organization
- b. Supervisor Functions
- c. Job Control Program.

2. Using the System Service Programs:

- a. Linkage Editor
- b. Librarian.

The prerequisite for a thorough understanding of this publication is a basic knowledge of System/360 machine concepts. The publications most closely related to this one are:

IBM System/360 Principles of Operation, Form A22-6821

IBM System/360 Disk Operating System, Data Management Concepts, Form C24-3427

IBM System/360 Disk Operating System Extended, Supervisor and Input/Output Macros, Form C24-5037

IBM System/360 Disk and Tape Operating Systems, Assembler Specifications, Form C24-3414

IBM System/360 Disk Operating System Extended, Basic Telecommunications Access Method, Form C30-5001

(118 pages)

C24-5037 IBM System/360 Disk Operating System Extended—Supervisor and Input/Output Macros 30

This reference publication contains planning information about the Input/Output Control System Macro Instructions and the Supervisor Macro Instructions for use with the IBM System/360 Disk Operating System

Extended (DOS). IBM publications that provide related information are:

IBM System/360 Principles of Operation, Form A22-6821

IBM System/360 Disk Operating System, Data Management Concepts, Form C24-3427

IBM System/360 Disk Operating System Extended, System Control and System Service Programs, Form C24-5036

IBM System/360 Disk and Tape Operating System, Assembler Specifications, Form C24-3414

IBM System/360 Disk Operating System Extended, Basic Telecommunications Access Method, Form C30-5001

(177 pages)

C24-5038 IBM System/360 Disk and Tape Operating Systems—FORTRAN IV Programmer's Guide 25

This publication describes the procedures for compiling and executing FORTRAN IV programs under control of the Disk Operating System or Tape Operating System. Its purpose is to guide the programmer with examples and techniques of the FORTRAN IV language. It also exposes the user to the components of the Control Program and facilities of the System/360 Disk and Tape Operating Systems. (69 pages)

C24-5039 IBM System/360 Disk Operating System—COBOL DASD Macros 24

This publication provides the programmer with rules for using DASD macros to handle input/output operations for direct access or indexed sequential files. The programmer should be familiar with:

COBOL: General Information Manual, Form F28-8053

IBM System/360 Disk and Tape Operating System, COBOL Language Specifications, Form C24-3433

IBM System/360 Disk Operating System, Data Management Concepts, Form C24-3427

IBM System/360 Disk Operating System, Supervisor and Input/Output Macros, Form C24-3429

(24 pages)

C24-5041 IBM System/360 Basic Operating System Programming Index 20

This index is a consolidation of the indexes of all programming publications for the IBM Basic Operating System (BOS). Each index entry is accompanied by the abbreviated publication title, the subject code of the publication within the IBM System Reference Library, and the publication form number. Appendix A contains a list of the BOS publications, by title and form number, used to compile this consolidated index. Appendix B contains the publication plan for the Basic Operating System.

For a complete list of all IBM System/360 publications (machine manuals, all programming support, etc.) by form number and subject code, and with the abstract of each publication, see the *IBM System/360 Bibliography*, Form A22-6822. (52 pages)

C24-5042 IBM System/360 Disk and Tape Operating Systems Extended—Utility Macros Specifications 32

This reference publication describes Multi-programming Support (MPS) Utility Macro-Instructions for use with the Disk and Tape Operating Systems. The reader should be familiar with the following publications:

IBM System/360 Disk Operating System Extended, System Control and System Service Programs, Form C24-5036

- IBM System/360 Tape Operating System Extended, System Control and System Service Programs, Form C24-5034*
- IBM System/360 Disk Operating System Extended, Supervisor and Input/Output Macros, Form C24-5037*
- IBM System/360 Tape Operating System Extended, Supervisor and Input/Output Macros, Form C24-5035*
- IBM System/360 Disk and Tape Operating Systems Assembler Specifications, Form C24-3414* (41 pages)
- C24-5059 IBM System/360 Disk Operating System PL/I DASD Macros** 29
- This publication provides the programmer with rules for using DASD macros with the IBM 2311 Disk Storage Drive to handle input/output operations for indexed sequential files. The programmer should be familiar with these publications:
- IBM System/360 Disk and Tape Operating Systems, PL/I Subset, Language Specifications, Form C28-6809*
- IBM System/360 Disk and Tape Operating Systems, PL/I Programmer's Guide, Form C24-9005*
- IBM System/360 Disk Operating System, Data Management Concepts, Form C24-3427*
- IBM System/360 Disk, Operating System, Supervisor and Input/Output Macros, Form C24-5037* (15 pages)
- C24-5060 IBM System/360 Basic Operating System—System Generation and Maintenance** 20
- This reference publication contains specifications and operating procedures used to generate an installation-tailored Basic Operating System. Supervisor macro-instructions are used to define the facilities that are required within the system.
- The following publications are useful references:
- IBM System/360 Basic Operating System, Utility Programs Specifications, Form C24-3409*
- IBM System/360 Basic Operating System, Programmer's Guide, Form C24-3372*
- IBM System/360 Basic Operating System, Assembler with I/O Macros Specifications, Form C24-3361*
- IBM System/360 Basic Operating System Operating Guide, Control Programs and Assembler, Form C24-3450*
- For titles and abstracts of other associated publications, see the *IBM System/360 Bibliography, Form A22-6822*. (80 pages)
- C24-5061 IBM System/360 Basic Programming Support, Basic Tape System, System Generation and Maintenance** 20
- This reference publication contains specifications and operating procedures for generating and maintaining a system tape for Basic Programming Support.
- For additional information, refer to the following publications:
- IBM System/360 Basic Programming Support, Basic Tape System, Programmer's Guide, Form C24-3354*
- IBM System/360 Basic Programming Support, Basic Tape System Operating Guide, Form C24-3391*
- IBM System/360 Basic Programming Support, Assembler with Input/Output Macros (Tape) Specifications, Form C24-3355*
- IBM System/360 Basic Programming Support, Specifications: Card and Tape Utility Programs, Form C24-5026*
- IBM System/360 Basic Programming Support, Operating Guide Card and Tape Utility Programs, Form C24-5027*
- IBM System/360 Basic Programming Support, Report Program Generator (Tape) Specifications, Form C24-3418.* (29 pages)
- C24-5062 IBM System/360 Disk Operating System—Autotest Specifications** 37
- This reference publication describes the testing services provided by the Disk Operating System Autotest. The following features are described: Autopatch, Test Request Options, normal and abnormal End of Job Dumps, Disaster Continue and the Autotest Card-to-Tape Variable program. Programmer-oriented diagnostic messages are also included. Control card formats and examples are given for Job Control as well as for Autotest.
- The reader should be familiar with the following related publications:
- IBM System/360 Principles of Operation, Form A22-6821*
- IBM System/360 Disk and Tape Operating Systems Assembler Specifications, Form C24-3414*
- IBM System/360 Disk Operating System System Control and System Service Programs, Form C24-5036*
- IBM System/360 Disk Operating System Operating Guide, Form C24-5022*
- IBM System/360 Disk Operating System System Generation and Maintenance, Form C24-5033*
- IBM System/360 Disk and Tape Operating System Utility Programs Specifications, Form C24-3465*
- For information regarding other related publications, see *IBM System/360 Bibliography, Form A22-6822*. (50 pages)
- C24-5063 IBM System/360 Disk Operating System Programming Index** 20
- This index is a consolidation of the indexes of all programming publications for the IBM Disk Operating System (DOS). Each index entry is accompanied by the abbreviated publication title, the subject code of the publication within the IBM System Reference Library, and the publication form number. Appendix A contains a list of the DOS publications, by title and form number, used to compile this consolidated index. Appendix B contains the publication plan for the Disk Operating System.
- For a complete list of all IBM System/360 publications (machine manuals, all programming support, etc.) by form number and subject code, and with the abstract of each publication, see the *IBM System/360 Bibliography, Form A22-6822*. (96 pages)
- C24-5064 IBM System/360 Tape Operating System Programming Index** 20
- This index is a consolidation of the indexes of all programming publications for the IBM Tape Operating System (TOS). Each index entry is accompanied by the abbreviated publication title, and subject code of the publication within the IBM System Reference Library, and the publication form number. Appendix A contains a list of the TOS publications, by title and form number, used to compile this consolidated index. Appendix B contains the publication plan for the Tape Operating System.
- For a complete list of all IBM System/360 publications (machine manuals, all programming support, etc.) by form number and subject code, and with the abstract of each publication, see the *IBM System/360 Bibliography, Form A22-6822*. (75 pages)
- C24-9005 IBM System/360 Disk and Tape Operating Systems PL/I Programmer's Guide** 29
- This publication provides information required for the writing of programs in the PL/I subset language, which is described in the SRL publication *PL/I Subset, Language Specifications, Form C28-6809* (hereafter called subset language manual).
- The main topics covered in this publication are:
1. Language—A detailed discussion of the items specified as implementation-defined in the subset language publication.
 2. Restrictions.
 3. System configuration.
 4. Estimate of storage requirements.
 5. General programming information — programming techniques to reduce core storage requirements.
 6. Overlay facility.
 7. Input/output information—file declarations, and storage requirements for file declarations and sub-routines called by input/output statements.
- Programs written in the PL/I subset language can be compiled by means of the PL/I-D compiler. The PL/I-D compiler operates under control of the Disk/Tape Operating Systems.
- Detailed information about the Disk/Tape Operating System is contained in the SRL publications:
- IBM System/360 Tape Operating System, System Control and Service Programs, Form C24-3431*
- IBM System/360 Disk Operating System, System Control and Service Programs, Form C24-5036* (68 pages)
- C26-3564 IBM System/360 Model 30 Specifications and Operating Guide Tape Overlap Emulator** 35
- This publication provides specifications for the IBM System/360 Model 30 Tape Overlap Emulator. A description of the functions of this program and the general requirements for its use are included. This program operates as an extension of the capabilities described in the publication, *IBM System/360 Model 30 1401/1440/1460 Basic Compatibility Feature and Sub-Features, Form A24-3255*. (10 pages)
- C26-3570 IBM System/360 Disk Operating System, Tape Operating System Report Program Generator** 28
- This publication contains fundamentals of RPG programming and language specifications for the IBM Basic Operating System/360 Report Program Generator. This program can be used for System/360 Models 30, 40, 50, 65, and 75. For information on the Basic Operating System that is beyond the purpose of this publication, see *IBM Basic Operating System/360 Data Management Concepts, 16K Disk, Form C24-3427*, or *16K Tape, Form C24-3430*. (172 pages)
- C26-3627 IBM System/360 Basic Operating System Operating Guide—IBM 1070 Process Communication Supervisor** 36
- This publication describes operating procedures for the IBM 1070 Process Communication Supervisor. It includes instructions for loading the 1070 routines into the BOS libraries and describes methods of assembling, loading, and executing the PCS and problem programs. A description of error messages and halts is also included. (20 pages)

C26-3756 IBM System/360 Operating System Assembler [F] Programmer's Guide 21

Program Number: 360-AS-037

This publication complements the IBM System/360 Operating System Assembler Language publication. It provides a guide to program assembling, linkage editing, executing, interpreting listings, assembler programming considerations, diagnostic messages, and object output cards. (48 pages)

C26-5996 IBM System/360 Basic Operating System—IBM 1070 Process Communication Supervisor 36

This publication provides specifications for the IBM 1070 Process Communication Supervisor. This supervisor works in conjunction with the IBM Basic Operating System/360 (8K Disk) to handle telecommunications between a System/360 host computer and a network of remotely-located 1070 terminals.

Included in this publication are detailed descriptions of the routines that make up the supervisor package, the macro-instructions used to call the routines, and performance data to help plan for use of the system. Also included is a glossary of process communication terms and a sample program illustrating the use of the supervisor in a typical application. (34 pages)

C26-5999 IBM System/360 RPG Translator 28

This manual provides programming specifications for the IBM System/360 RPG Translator. It describes the operations necessary for converting a 1400 rpg source program to a System/360 rpg source program.

The information contained in this publication will enable a 1400 rpg programmer to determine and to formulate preliminary plans for its use.

This manual lists the machine features required and supported, describes the functional characteristics of the program, and provides a section on data checking and operating characteristics. Restrictions to the program are defined, and suggested solutions are provided. A program example is also included.

Related System/360 rpg literature is contained in the following publications: *IBM System/360 Model 20 Report Program Generator*, Form C26-3600; *IBM System/360 Basic Programming Support RPG (Card)*, Form C24-3374; *IBM Basic Operating System/360 RPG Language Specifications (8K Disk)*, Form C24-3387; and *IBM Operating System/360 Report Program Generator Language*, Form C24-3337. (20 pages)

C27-6908 IBM System/360 Conversion Aids: The 7074 Emulator Program for IBM System/360 Models 50 and 65 35

Program Number: 360C-EU-725

This publication provides information on the IBM 7074 Emulator Program (360C-EU-725), and is directed to the user who is supplementing or replacing his IBM 7070/7074 Data Processing System with an IBM System/360 Model 50 or 65. Emulation is a technique that utilizes both equipment (Compatibility Feature) and programming to execute object programs written for other data processing systems. (50 pages)

C27-6909 IBM System/360 Operating System—Graphic Programming Services for IBM 2250 Display Unit 30

Program Number: 360S-IO-523

This publication describes macro-instructions and routines provided under the IBM System/360 Operating System for use with the IBM 2250 Display Unit.

These programming services are designed to facilitate the assembler-language coding of programs for

displaying data in alphanumeric or graphic form on the 2250 screen and for controlling man-machine communication using the 2250. Included are facilities for creating the image-defining orders and data, for controlling input/output functions of the graphic device, and for handling communications from a 2250 operator. Both basic and express attention handling are described.

It is assumed that the reader of this publication is experienced in IBM System/360 assembler language coding. (128 pages)

C27-6911 IBM System/360 Conversion Aids: The 7080 Emulator Program for IBM System/360 Model 65 35

Program Number: 360C-EU-727

Special machine and programming features expand the capabilities of IBM System/360 Model 65 to include an alternate mode of operation: operation as the IBM 7080 Emulator. The Emulator is the effective equivalent of the IBM 7080 Data Processing System, and is capable of executing programs written for the 7080. This publication describes how to prepare and use a suitably configured System/360 for the execution of 7080 programs.

General information is provided on Emulator characteristics, programming considerations, and operating considerations. Complete instructions for system generation and program use are provided, together with detailed information on error messages and corrective actions. (54 pages)

C27-6912 IBM System/360 Operating System—Graphic Programming Services for IBM 2260 Display Station (Local Attachment) 30

Program Number: 360S-IO-523

This publication describes programming services for using the IBM 2260 Display Station with the System/360 Operating System. Included are descriptions of macro-instructions for input/output control and for basic and express attention handling, along with some general requirements for using the display station effectively.

Although intended primarily for the programmer coding in System/360 assembler language, portions of this publication are also of interest to installation managers, system engineers, system programmers, and others seeking general information about programming the IBM 2260 Display Station. (44 pages)

C27-6918 IBM System/360 Operating System Maintenance Program 3605-UT-506 31

This publication describes the procedure for applying IBM-distributed maintenance material, or user-provided material in a prespecified form, to operating-system libraries. The major portion of this information concerns the Update Analysis Program—a program that determines the applicability of maintenance material for the individual system libraries, and accordingly constructs a job stream that effects the library updating. (37 pages)

C27-6924 IBM System/360 Disk Operating System Vocabulary File Utility Program for the IBM 7772 Audio Response Unit—Preliminary Specifications 32

The Vocabulary File Utility Program is a System/360 program that creates, organizes, and maintains the file of word representations from which the audible responses of the IBM 7772 Audio Response Unit are formed.

This publication describes the program in sufficient detail to plan for its use. It contains information about program capabilities and options, equipment requirements, and control statements.

The reader should have an understanding of the IBM System/360 Disk Operating System, of which this utility program is a component, and be familiar with the information in the following publications:

IBM System/360 Disk Operating System Extended—System Control and System Service Programs, Form C24-5036

IBM 7772 Audio Response Unit Vocabulary, Form A27-2710

IBM System/360 Component Description: IBM 7772 Audio Response Unit, Form A27-2711

(13 pages)

C27-6926 IBM System/360 Operating System Option 2: Multiprogramming with a Fixed Number of Tasks Concepts and Considerations 36

This publication describes the basic concepts of multiprogramming with a fixed number of tasks which is Option 2 of the IBM System/360 Operating System. It also includes aspects that must be considered to gain maximum effectiveness from the use of this operating system option. (12 pages)

C27-6927 IBM System/360 Operating System Graphic Programming Services for IBM 2280 and 2282 Film Units 30

Program Number: 360S-IO-523

This publication contains information for writing programs using the IBM 2280 Film Recorder or the IBM 2282 Film Recorder/Scanner.

For complete coverage of available 2280/82 graphic programming services, this publication must be used with *IBM System/360 Operating System; Graphic Programming Services for IBM 2250 Display Unit*, Form C27-6909.

The information consists primarily of formats and descriptions of macro-instructions that generate orders and data that control the graphic devices. Considerations for user's error handling routines are also included. (56 pages)

C27-6929 IBM System/360 Conversion Aids: Sample Problems for IBM System/360 Emulator Programs 35

Program Numbers:

360C-EU-074

360C-EU-097

360C-EU-725

360C-EU-726

360C-EU-727

360C-EU-728

360C-EU-729

360C-EU-731

360C-EU-733

Sample problems are provided as a part of the distribution material for IBM System/360 Emulator Programs. They are illustrative examples designed to familiarize the user with the techniques required to execute object programs written for other IBM data processing systems under Emulator control. Sample problems are not intended to provide detailed and exhaustive tests or demonstrations of Emulator Programs.

Included in this publication are sample problems for use with the following Emulators: 1401/1440/1460 Model 30, 1401/1460 Model 40, 1410/7010 Models 40 and 50, 1620 Model 30, 7040/7044 Model 65, 7074 Models 50 and 65, 7080 Model 65, and 709/7090/7094/7094n Model 65. (28 pages)

C27-6932 IBM System/360 Operating System 25
Graphic Programming Services for
FORTRAN IV—Preliminary Specifications

This publication contains information that enables a FORTRAN programmer to write graphic programs for use with the IBM 2250 Display Unit in association with the IBM System/360 Operating System. It also contains supplementary information that describes how the same facilities may be used in a program written in Assembler Language.

The graphic programming services for FORTRAN consist of subroutines and functions for displaying characters or graphic forms on the 2250 screen and for controlling communication between the program and the 2250 operator. The subroutines may be called from a program written in the E, G, or H level of FORTRAN IV, or from a program written in Assembler Language. They are not an extension of the FORTRAN IV language, but may be used in conjunction with it.

It is assumed that the FORTRAN user of this publication is experienced in the IBM System/360. Operating System FORTRAN IV language. It is assumed that the Assembler Language user of this publication is experienced in both FORTRAN IV and Assembler Language. (109 pages)

C28-2000 IBM System/360 Time Sharing 21
System Assembler Language

This publication describes the IBM System/360 Time Sharing System Assembler Language. This assembler language is a symbolic programming language used to write programs for the IBM System/360. The language provides a convenient means for representing the machine instructions and related data necessary to program the IBM System/360, especially as related to the IBM Time Sharing System, hereafter referred to as Time Sharing System/360. The IBM Time Sharing System/360 Assembler Program processes the language and provides auxiliary functions useful in the preparation and documentation of a program, and includes facilities for processing the assembler macro language. (137 pages)

C28-2001 IBM System/360 Time Sharing 36
System Command Language
User's Guide

This manual provides detailed information on the command language commands available to the time sharing system user.

The user employs these commands to direct the time sharing system in the handling, execution, and debugging of his programs. (225 pages)

C28-2002 IBM System/360 Time Sharing 36
System Command Language for
Administrators and Operators

This manual provides detailed information on the command language commands available to the system manager, system administrator, system operator, and subsidiary operator.

The system manager and system administrator share an identical set of commands with which they control user access to the time sharing system. The system operator has a unique set of commands with which he controls and monitors the system configuration and handles system requests. The subsidiary operator employs a subset of these commands to service requests from the system. (113 pages)

C28-2003 IBM System/360 Time Sharing 20
System Concepts and Facilities

This publication explains the basic concepts of the IBM System/360 Time Sharing System and describes the facilities available in its initial release.

The IBM System/360 Time Sharing System (TSS/360) is a comprehensive programming system that is used in conjunction with System/360 computers having time sharing features. It is composed of three sets of programs: a supervisory program, a group of service programs, and a group of user programs. The supervisory program controls the operation of the system and provides the time sharing environment. The service programs perform task and data management functions in response to user or system requests. The user programs perform language processing, linkage editing, sort/merge functions, and a variety of other work defined by user-written problem programs.

The basic purpose of TSS/360 is to provide many simultaneous users with conversational access to a computing system. However, it can also perform background, nonconversational processing, in addition to serving conversational users. Users can share a single processor, or multiple processors. By combination of machine and program features, each user appears to have sole possession of the system; and he uses the system as if it had a directly accessible main storage addressing space equal to the addressing capability of the system, rather than its actual main storage capacity. (123 pages)

C28-2004 IBM System/360 Time Sharing 36
System Assembler User
Macro-Instructions

The IBM System/360 Time Sharing System provides comprehensive program and data management services which, together with the communication, bulk output, and interrupt handling services, are requested through macro-instructions, the subject of this publication. Written in the Assembler language, these macro-instructions aid in the programming and processing of tasks using Time Sharing System/360. (191 pages)

C28-2005 IBM System/360 Time Sharing 31
System Linkage Editor

The linkage editor is one of the processing programs available in IBM System/360 Time Sharing System. It connects and edits program modules that may have been assembled or compiled separately, to produce a single program module that can be efficiently loaded by the dynamic loader, as needed, at execution time. Linkage editor facilities are available in both conversational and nonconversational modes of operation. (35 pages)

C28-2007 IBM System/360 Time Sharing 25
System IBM FORTRAN IV

This publication describes and illustrates the use of the IBM FORTRAN IV language for the IBM System/360 Time Sharing System referred to hereafter as Time Sharing System/360. The reader is presumed to have some knowledge of an existing FORTRAN language.

The IBM FORTRAN IV language is a symbolic programming language. It parallels the symbolism and format of mathematical notation. In addition, many programming features and facilities are available for expressing the method of solution of a mathematical problem as a meaningful FORTRAN program. (113 pages)

C28-2017 IBM System/360 Time Sharing 36
System Terminal User's Guide

This manual gives instructions for operating the IBM 2741 Communications Terminal and the IBM 1050 Data Communications System in the IBM System/360 Time Sharing System. (25 pages)

C28-6380 IBM System/360 Operating 24
System COBOL (F) Programmer's Guide

Program Numbers:
360S-CB-524
360S-LM-525

This publication describes how to compile, linkage edit, and execute a COBOL (F) program. The text also describes the output from each of these steps. In addition, it explains options of the compiler and many available features of the operating system. (150 pages)

C28-6501 IBM 7090/7094 Support Package 35
for IBM System/360

The IBM 7090/7094 Support Package for the IBM System/360 consists of three programs. These programs are designed to permit the assembly, testing, and execution on an IBM 709, 7090, 7094, or 7094 II Data Processing System, of programs written for an IBM System/360. The three component programs are a 7090 assembly program, a 7090 simulator program, and a 1401 input program.

The support package can process all System/360 assembler language and machine language programs that are not specifically dependent on input/output timing considerations. It accepts the machine instruction and assembler instruction mnemonic codes of the IBM System/360 special support basic assembler language and simulates the standard, scientific, commercial, universal, storage protection, and direct control instruction sets of System/360. It simulates most input/output operations and most interruption procedures of System/360. Simulation of up to 64K bytes of System/360 main storage is allowed. With certain limitations, the support package simulates the operations of the 1052 Printer-Keyboards, 1402 Card Read Punch, 1403 Printer, 1442 Card Read Punch, 1443 Printer, and the 2401, 2402, 2403, and 2404 Magnetic Tape Units. In addition, it provides extensive facilities for use in detecting and tracing errors in object programs.

Assembly and simulator programs operate under a supervisor program called in by the 7090/7094 Operating System Monitor, IBSYS.

It is assumed that the user of this publication is familiar with the basic assembler language and with the IBM System/360 Principles of Operation, Form A22-6821. (73 pages)

C28-6503 IBM System/360 Basic 21
Programming Support—Basic
Assembler Language

Program Number: 360P-AS-021

This publication contains information required for writing programs in the Basic Assembler language, a symbolic programming language for the IBM System/360. The Basic Assembler language permits the use of symbolic operation codes and addresses instead of machine-language codes and addresses, and provides other conveniences for the programmer in using the full capabilities of the IBM System/360. Basic Assembler language source programs are translated into object programs by the Basic Assembler.

This publication provides a description of the Basic Assembler language, a list of symbolic instructions with their machine-language equivalents, and explanations of the instructions available to the programmer for controlling the Basic Assembler. A description of the Basic Assembler is included, emphasizing those features concerned with the planning and writing of source programs. (65 pages)

C28-6505 IBM System/360 Basic Programming Support—Basic Utilities 32

Program Numbers: 360P-UT-017, -018, -019, -020

This publication contains all the information needed to make use of the Basic Programming Support Basic Utility programs provided for users of IBM System/360. The utility programs provided are:

- Absolute Loader
- Relocating Loader
- Dump Program
- Input/Output Support Package

These programs are designed to load assembled programs into main storage; to provide listings of the contents of storage; and to provide routines for accessing input/output devices. The functions and possible modifications of each program are described in detail. (73 pages)

C28-6514 IBM System/360 Operating System Assembler Language 21

This publication contains specifications for the IBM System/360 Operating System Assembler Language (Levels E and F).

The assembler language is a symbolic programming language used to write programs for the IBM System/360. The language provides a convenient means for representing the machine instructions and related data necessary to program the IBM System/360. The IBM System/360 Operating System Assembler Program processes the language and provides auxiliary functions useful in the preparation and documentation of a program, and includes facilities for processing the assembler macro language.

Part I of this publication describes the assembler language.

Part II of this publication describes an extension of the assembler language—the macro language—used to define macro-instructions. (148 pages)

C28-6515 IBM System/360 FORTRAN IV Language 25

This publication describes and illustrates the use of the FORTRAN IV language for the IBM System/360 Operating System and the IBM System/360 Model 44 Programming System. (121 pages)

C28-6516 IBM System/360 Operating System COBOL Language 24

*Program Numbers:
360S-CO-503 (COBOL E)
360S-CB-524 (COBOL F)*

COBOL (Common Business Oriented Language) is a programming language, similar to English, that is used for commercial data processing. It was developed by the Conference of Data Systems Languages (CODASYL).

This publication provides the programmer with rules for writing programs that are to be compiled by the COBOL E and COBOL F compilers under Operating System/360. Any violation of Operating System/360 COBOL as defined in this publication is considered an error. The features of each compiler as well as the extensions to COBOL are listed in the Preface.

Programmers unacquainted with COBOL should read the programmed instruction textbook *COBOL Program Fundamentals*, Form R29-0205, with its reference handbook, Form R29-0206. (156 pages)

C28-6528 IBM System/360 Conversion Aids: The 1410/7010 Simulator for IBM System/360 35

Program Number: 360C-SI-754

This document provides information on the IBM Sys-

tem/360 Simulator for the IBM 1410/7010, and is directed to the user who is replacing his IBM 1410/7010 Data Processing System with an IBM System/360 Model 40, 50, 65, or 75. Simulation is a technique that uses System/360 instruction sequences to perform the functions of 1410/7010 instructions, thus permitting the user to execute object programs written for the 1410/7010. (58 pages)

C28-6529 IBM System/360 Simulator for the IBM 1620 Model 1 and 2 Preliminary Specifications 35

This publication contains information needed in planning for use of the Simulator during the conversion of a 1620 installation to a System/360 installation.

In effect, the Simulator will enable the System/360 to perform as a 1620. This will permit the running of 1620 programs that are not rewritten for the System/360.

The reader should be familiar with the contents of the following publications: *IBM System/360 System Summary*, Form A22-6810; *IBM System/360 Principles of Operation*, Form A22-6821; *IBM 1620 Central Processing Unit Model 1*, Form A26-5706 or *IBM 1620 Central Processing Unit Model 2*, Form A26-5781. (16 pages)

C28-6530 IBM System/360 Conversion Aids: The 7070/7074 Simulator for IBM System/360 35

Program Number: 360C-SI-753

This document provides information on the IBM System/360 Simulator for the IBM 7070/7074, and is directed to the user who is replacing his IBM 7070/7074 Data Processing System with an IBM System/360 Model 40, 50, 65, or 75. Simulation is a technique which uses System/360 instruction sequences to perform the functions of 7070/7074 instructions, thus permitting the user to execute object programs written for the 7070/7074. (68 pages)

C28-6531 IBM System/360 Conversion Aids: The 7080 Simulator for IBM System/360 35

Program Number: 360C-SI-751

This document provides information on the IBM System/360 Simulator for the IBM 7080, and is directed to the user who is replacing his IBM 7080 Data Processing System with any model IBM System/360 with at least 131,072 bytes of main storage. Simulation is a technique that uses System/360 instruction sequences to perform the functions of 7080 instructions, thus permitting the user to execute object programs written for the 7080. (64 pages)

C28-6532 IBM System/360 Conversion Aids: The 7090/7094 Simulator for IBM System/360 35

Program Number: 360C-SI-750

This document provides information on the IBM System/360 Simulator for the IBM 7090/7094 I/7094 II and is directed to the user who is replacing his IBM 7090/7094 I/7094 II Data Processing System with an IBM System/360 Model 40, 50, 65, or 75. Simulation is a technique which uses System/360 instruction sequences to perform the functions of 7090/7094 I/7094 II instructions, thus permitting the user to execute object programs written for the 7090/7094 I/7094 II. (64 pages)

C28-6534 IBM System/360 Operating System Introduction 20

This publication describes the general organization, function, and application of IBM System/360 Operating System.

The operating system is designed to extend the performance and application of Computing System/360 and to assist the manager, programmer, and operator of the system. The operating system consists of a comprehensive set of language translators and service programs operating under the supervisory control and coordination of an integrated set of control routines. It is designed for use with Models 30, 40, 50, 65, and 75 of Computing System/360. The operating system is located in direct-access storage, such as disk or drum, and operates on computing systems that have 32,768 bytes or more of main storage. (24 pages)

C28-6535 IBM System/360 Operating System Concepts and Facilities 20

This publication describes the basic concepts of the IBM System/360 Operating System (the operating system) and guides the programmer in the use of its facilities.

The operating system is a comprehensive set of language translators and service programs operating under the supervision and coordination of an integrated control program. It assists the programmer by extending the performance and application of the computing system. (64 pages)

C28-6538 IBM System/360 Operating System Linkage Editor 31

This publication provides programmers and systems analysts with the information necessary to make effective use of the linkage editor of Operating System/360. Included are descriptions of the functions performed automatically by the linkage editor as well as those performed in response to control statements prepared by the programmer.

The linkage editor combines and edits modules to produce a single module that can be loaded by the control program. The linkage editor operates as a processing program rather than as a part of the control program. (47 pages)

C28-6539 IBM System/360 Operating System Job Control Language 36

This publication describes the facilities of the Job Control Language, and illustrates how to use these facilities in various applications. Information coded by programmers on job control statements is used by the System/360 Operating System to initiate and control the processing of jobs.

Information in this publication is applicable to systems with PCP, MFT, and MVT. (80 pages)

C28-6540—IBM System/360 Operating System Operator's Guide 20

This publication tells how to run the IBM System/360 Operating System. After summarizing how the system works, it describes the three major system types: systems with the primary control program (PCP); systems that provide multiprogramming with a fixed number of tasks (MFT or Option 2); and systems that provide multiprogramming with a variable number of tasks (MVT or Option 4). Instructions are given telling:

1. How to start, stop, and restart the system.
2. How to control input and output.
3. How to control jobs through commands and statements.
4. How to understand messages.

General operating techniques are discussed, as well as the meanings of many technical terms. (84 pages)

- C28-6543 IBM System/360 Operating System Sort/Merge** 33
Program Number: 360S-SM-023
 This publication contains specifications for the IBM System/360 Operating System Sort/Merge program, including control statement preparation, program operation, I/O device assignment, and timing estimates. The program has generalized sorting and merging capabilities that can be tailored to the needs of particular installations and applications. (164 pages)
- C28-6550 IBM System/360 Operating System System Programmer's Guide** 20
 This publication describes:
 1. How to maintain the data set cataloging facility of the Operating System and the volume-table-of-contents (VTOC) of a direct-access volume.
 2. How to modify or extend capabilities of the Operating System in the areas of job and job-step accounting, processing of magnetic tape labels, and SVC routines.
 3. How to implement the data set protection feature of the Operating System.
 4. How to write a shift initiator program for use when the multiprogramming with a fixed number of tasks (MFT) option is incorporated in the Operating System.
 5. How to use the EXCP (Execute a Channel Program) and XDAP (Execute a Direct-Access Program) macro-instructions, the Resident Access-Method and BLDL Table options, and the tracing routine.
 Also included are descriptions of system macro-instructions used in modifying the control program. (136 pages)
- C28-6551 IBM System/360 Operating System Storage Estimates** 20
 This publication contains instructions, formulas, and tables to be used in estimating the main and auxiliary storage requirements of any configuration of the IBM System/360 Operating System. This publication is intended for three types of users: sales personnel, who will use the introduction to evaluate the feasibility of using the configurations; systems programmers, who will use the publication to plan the storage requirements of a new system and to determine the amount of storage available to the problem programmer; the problem programmer, who will use the dynamic storage section to estimate the requirements of his jobs. (128 pages)
- C28-6553 IBM System/360 Operating System Telecommunications Preliminary Specifications** 30
 This publication contains preliminary information on how to apply and use IBM Operating System/360 for remote message processing and how to use the control program for performing the input/output operations of a data communications system.
 Guidance is provided for problem programming within the system. Descriptions of applicable macro-instructions, suggesting how, when, and where to use them are also included. (88 pages)
- C28-6554 IBM System/360 Operating System System Generation** 31
 System generation is a process that generates an IBM System/360 Operating System adapted to both the machine configuration and the data processing requirements of an installation. The system generation process is performed under the control of an existing IBM System/360 Operating System. This publication provides information on the computing system and operating system requirements for system generation, the initialization of system volumes and data sets, the macro-instructions used in specifying system generation, and the methods of including user-written programs in the operating system. (78 pages)
- C28-6557 IBM System/360 Basic Programming Support—Operating Guide for Basic Assembler and Basic Utility Programs (Card)** 20
 This publication describes the preparation and use of the Basic Assembler and Basic Utility Programs. The Basic Assembler converts programs written in the assembler language into machine language object code. The Basic Utility Programs are concerned with loading programs into storage, printing out the contents of storage, and using input/output devices. (29 pages)
- C28-6559 IBM System/360 Transition Aids: COBOL Language Conversion Program (1401-CB-701) for the IBM 1401** 24
 This publication contains preliminary information about the IBM COBOL Language Conversion Program (COBOL LCP). The COBOL LCP facilitates transition to IBM System/360 by converting COBOL source programs written for IBM current-system COBOL compilers into source programs for a System/360 COBOL compiler, Design Level E or Design Level F. This publication is intended to assist users of current COBOL in planning for use of the COBOL Language Conversion Program. (42 pages)
- C28-6560 IBM System/360 Conversion Aids: FORTRAN II Language Conversion Program for the IBM 1401** 25
Program Number: 1401-FO-702
 This publication contains information about the IBM FORTRAN II Language Conversion Program (FORTRAN LCP). The FORTRAN LCP facilitates transition to IBM System/360 by detecting statements in FORTRAN II source programs that are incompatible with System/360 FORTRAN IV, by converting these statements to the proper System/360 format when possible, and by providing message codes for statements that cannot be converted. This publication is intended to assist users of current FORTRAN in the use of the FORTRAN Language Conversion Program. (71 pages)
- C28-6561 IBM System/360 Conversion Aids: The 1401/1460 Emulator Program for IBM System/360 Model 40** 35
Program Number: 360C-EU-074
 This publication contains the information required to use the IBM 1401/1460 Emulator for IBM System/360 Model 40. The Emulator comprises the IBM 1401/1460 Emulator Program (360C-EU-074) and IBM 1401/1460 Compatibility Feature #4457. General information concerning machine requirements, data formats, and control cards is included, as are detailed explanations of operating procedures, user modification of the Emulator Program, and special instructions added by the Compatibility Feature.
 The Emulator allows programs written for IBM 1401/1460 card/tape/disk systems to be executed on System/360 Model 40, with little or no reprogramming. Emulation provides substantial improvement over the speeds possible with simulation. (44 pages)
- C28-6563 IBM System/360 Conversion Aids: The 1410/7010 Emulator Program for IBM System/360 Model 40** 35
Program Number: 360C-EU-728
 This publication provides information for the user who is planning to supplement or replace his IBM 1410 or 7010 card/tape/disk system with an IBM System/360 Model 40. Emulation is a technique which utilizes both equipment capabilities (Compatibility Feature #4478) and programming (Emulator Program 360C-EU-728) to execute object programs of other data processing systems. The 1410/7010 Emulator allows the user to run 1410/7010 programs on the System/360 Model 40 with little or no reprogramming. This technique provides substantial improvement over the speeds achievable with simulators.
 Included in this document are the characteristics, functions, requirements, limitations, and operating procedures of the Emulator. (50 pages)
- C28-6565 IBM System/360 Conversion Aids: The 709/7090/7094/7094 II Emulator Program for IBM System/360 Model 65** 35
Program Number: 360C-EU-729
 This publication describes the characteristics and use of the IBM 7090 Emulator Program, a component of the IBM 7090 Emulator. The Emulator consists of this program, and special machine additions and modifications called the IBM 7090 Compatibility Feature (#7119). The combination of program and machine feature enables the user to execute, on his System/360 Model 65, programs written for the IBM 709, 7090, 7094, and 7094 II Data Processing Systems. (68 pages)
- C28-6568 IBM System/360 Conversion Aids: The 1410/7010 Emulator Program for IBM System/360 Model 50** 35
Program Number: 360C-EU-726
 This publication provides information for the user who is planning to supplement or replace his IBM 1410 or 7010 card/tape/disk system with an IBM System/360 Model 50. Emulation is a technique that utilizes both machine adaptations and programming to execute object programs written for other data processing systems. The 1410/7010 Emulator (Compatibility Feature #4478 and Emulator Program No. 360C-EU-726) allows the user to run 1410/7010 programs on the System/360 Model 50, with little or no reprogramming. This technique provides substantial improvement over the speeds that can be achieved with simulators.
 Included in this document are the characteristics, functions, requirements, limitations, and operating procedures of the Emulator. (42 pages)
- C28-6570 IBM System/360 Transition Aids: COBOL Language Differences** 24
 This publication summarizes the System/360 and Current Systems specifications for major IBM COBOL language elements requiring evaluation, and possible conversion, during the transition to IBM System/360 COBOL. System/360 COBOL differences from Current Systems COBOL are also summarized. Where pertinent, the distinction is made between Level E and Level F COBOL for System/360. (79 pages)
- C28-6571 IBM System/360 Operating System PL/I Language Specifications** 29
 All of the features in the PL/I Language are described in this publication. Those features that are not supported by the second release of the PL/I (F) Compiler are indicated in Appendix H of the publication *IBM System/360 Operating System, PL/I (F) Programmer's Guide*, Form C28-6594. (184 pages)

C28-6583 IBM System/360 Basic Programming Support—FORTRAN IV, 360P-FO-031 Programmer's Guide	25	tape, or direct-access storage devices. It also provides the user with powerful and comprehensive diagnostic facilities.	C28-6628 IBM System/360 Operating System—System Control Blocks	36
This publication describes the procedures for compiling and executing programs written in the Basic Programming Support FORTRAN IV language. It also includes the procedures for editing and updating the Basic Programming Support FORTRAN IV system and for preparing a Basic Programming Support FORTRAN IV job for a machine run. (86 pages)		This publication serves two purposes. First, it should be used in conjunction with, and as a supplement to, the publication <i>IBM System/360 Operating System, PL/I: Language Specifications</i> , Form C28-6571, which provides a complete description of PL/I. It describes certain restrictions and conventions that apply to programs to be used with the (F) Compiler. Second, this manual presents additional information of interest to users of the compiler, such as options available to the user, and certain relationships between the compiler and the Operating System. (188 pages)	This publication contains the formats of the major control blocks and tables used by more than one component of System/360 Operating System Control Program. Descriptions of each field within the control blocks or tables follow each format. (112 pages)	
C28-6585 IBM System/360 Model 65 Emulation of the IBM 7040/7044 Data Processing Systems	35	C28-6595 IBM System/360 Operating System Assembler (E) Programmer's Guide	21	
This publication provides preliminary information about the characteristics, functions, requirements, limitations, and operating procedures of the IBM 7040/7044 Emulator. This Emulator allows the user who plans to supplement or replace his present data processing system with the IBM System/360 Model 65 to execute his current programs on the IBM System/360 without reprogramming. (28 pages)		This publication complements the IBM System/360 Operating System Assembler Language publication. It provides a guide to program assembling, linkage editing, executing, interpreting listings, and assembler programming considerations. (43 pages)		
C28-6586 IBM System/360 Operating System Utilities	32	C28-6596 IBM System/360 FORTRAN IV Library Subprograms	25	
<i>Program Numbers:</i> 360S-UT-506 360S-UT-507		<i>Program Numbers:</i> 360S-LM-501 360F-LM-619		
This publication discusses the capabilities of the IBM System/360 Operating System utility programs and the control statements used with each program. These programs are used by programmers responsible for organizing and maintaining operating system data.		This publication describes the library subprograms supplied with Basic FORTRAN IV (E) and FORTRAN IV (C, H, and MODEL 44) and tells how to use the subprograms in either a FORTRAN or an assembler language program. (32 pages)		
Three types of utility programs are discussed: <i>system utilities</i> and <i>data set utilities</i> , which are used directly with the System/360 Operating System; and <i>independent utilities</i> , which operate outside the operating system. System utilities deal with operating system control data. Data set utilities manipulate data sets at the record level and above. Independent utilities initialize, dump, and restore direct-access volumes. (120 pages)		C28-6602 IBM System/360 Operating System FORTRAN IV (H) Programmer's Guide	25	
C28-6590 IBM System/360 Operating System PL/I Subroutine Library Computational Subroutines	29	<i>Program Number:</i> 360S-FO-500		
<i>Program Number:</i> 360S-LM-512		This publication describes how to compile, link edit, and execute a program written in IBM System/360 FORTRAN IV Language. (97 pages)		
This publication gives details of the computational subroutines available in the PL/I Library. These subroutines are used by the PL/I (F) compiler in the implementation of PL/I built-in functions and of the operators used in the evaluation of PL/I expressions. Not all PL/I built-in functions and expression operators are supported by the PL/I Library; the compiler generates in-line code for a small number of them. The details provided include timing figures, summaries of the mathematical methods used, and (where appropriate) figures for range and accuracy. This information is intended to be of interest chiefly to those programmers concerned with the performance of computational subprograms. (84 pages)		C28-6603 IBM System/360 Operating System FORTRAN IV (E) Programmer's Guide	25	
C28-6594 IBM System/360 Operating System PL/I (F) Programmer's Guide	29	<i>Program Number:</i> 360S-FO-092		
<i>Program Number:</i> 360S-NL-511		This publication describes how to compile, link edit, and execute a FORTRAN IV (E) program. The text also describes the output of compilation and execution and how to make optimal use of the compiler and a load module. (118 pages)		
The PL/I (F) Compiler provides fast translation of PL/I source programs into efficient object programs in System/360 machine language. The compiler functions within Operating System/360 and may be used on systems where at least 45,056 bytes (44K) of core storage are available for the compilation itself.		C28-6615 IBM System/360 Operating System ALGOL Language	26	
The (F) Compiler accepts, as input, PL/I source programs from punched cards, paper tape, magnetic		This publication provides the programmer with the information needed to use the IBM System/360 Operating System ALGOL compiler for the solution of scientific and technical problems. ALGOL has been introduced in a number of universities and technical institutes for communication and education purposes. To assist that particular area, the OS/360 ALGOL Compiler is intended to provide a bridge to System/360 for existing ALGOL users. A basic knowledge of the ALGOL language is assumed.		
		This publication consists of two main parts. The first (section 1 to 5) describes the elements of the ALGOL language, the second (section 6) describes the input/output procedures to be called when using ALGOL. (109 pages)		
		C28-6628 IBM System/360 Operating System—System Control Blocks	36	
		C28-6629 IBM System/360 Basic FORTRAN IV Language	25	
		This publication describes and illustrates the use of the Basic FORTRAN IV language for the IBM System/360 Operating System, the IBM System/360 Disk Operating System, the IBM System/360 Tape Operating System, and the IBM System/360 Basic Programming Support Tape System. (93 pages)		
		C28-6630 IBM System/360 Operating System Starter Operating System Guide	20	
		<i>Program Number:</i> 360S-CI-514		
		This publication provides the information necessary to prepare the starter operating system package for use. It describes the contents of the starter system, configuration requirements, initialization, preparation for system generation, and the sample programs to test the functioning of components of the system. (31 pages)		
		C28-6631 IBM System/360 Operating System Messages, Completion Codes and Storage Dumps	20	
		This publication lists and explains the messages and completion codes produced by all IBM-supplied components of the IBM System/360 Operating System. The introduction shows the formats of the messages and completion codes, and gives certain information not given in the individual message descriptions. The messages and completion codes are presented in alphabetic order.		
		The formats of the storage dumps associated with abnormal terminations are also described.		
		This publication contains all information in, and obsoletes, the publication <i>IBM System/360 Operating System: Control Program Messages and Completion Codes</i> , Form C28-6608. (297 pages)		
		C28-6632 IBM System/360 Operating System Job Control Language Charts	36	
		This publication presents the Job Control Language in a graphic form. Detailed flowcharts describe how to code job control statements for a sequential scheduling system. (67 pages)		
		C28-6639 IBM System/360 Operating System FORTRAN IV (G) Programmer's Guide	25	
		<i>Program Number:</i> 360S-FO-520		
		This publication describes how to compile, link edit, and execute a program written in IBM System/360 FORTRAN IV Language. (94 pages)		
		C28-6644 IBM System/360 Operating System Master Index	20	
		This publication is a consolidation of the indexes to publications in the IBM System Reference Library for the System/360 Operating System. Entries are listed alphabetically, with the title and form number of the SRI publication containing the reference. (161 pages)		

- C28-6646—IBM System/360 Operating System Supervisor and Data Management Services** 36
This publication describes the services and facilities available in the IBM System/360 Operating System when using supervisor and data management macro-instructions. It also describes the linkage conventions established for use in the operating system.
This publication covers the three main configurations of the operating system: systems with the primary control program; systems that provide multiprogramming with a fixed number of tasks (MFT or Option 2); systems that provide multiprogramming with a variable number of tasks (MVT or Option 4). (160 pages)
- C28-6647 IBM System/360 Operating System Supervisor and Data Management Macro-Instructions** 36
This publication defines and describes the supervisor and data management macro-instructions available in the IBM System/360 Operating System. The macro-instruction descriptions and definitions apply to the three main configurations of the operating system: systems with the primary control program; systems that provide multiprogramming with a fixed number of tasks (MFT or Option 2); and systems that provide multiprogramming with a variable number of tasks (MVT or Option 4). (270 pages)
- C28-6648 IBM System/360 Operating System TESTRAN** 37
TESTRAN is a facility for testing programs written in the assembler language for execution under the System/360 Operating System. It is intended for use by the individual programmer in testing his own programs.
This publication explains how to use TESTRAN for typical testing purposes, how to write essential job control statements, and how to interpret printed test results. It formally describes TESTRAN statements, cataloged procedures supplied by IBM, and TESTRAN diagnostic messages.
The information in this publication applies to systems that include the primary control program (PCP) or provide multiprogramming with a fixed number of tasks (MFT or Option 2). Amendments to this publication will supply information applicable to systems that provide multiprogramming with a variable number of tasks (MVT or Option 4). (96 pages)
- C28-6656 IBM System/360 Operating System Checkpoint/Restart** 31
This publication describes the checkpoint/restart facility of the IBM System/360 Operating System, and contains the information necessary for programmers and operators to use the facility.
The checkpoint/restart facility saves job step information at specific checkpoints in a program so that, in the event of error, it can restart the job step from one of the checkpoints. (17 pages)
- C28-6808 A Programming Language/One Primer** 90
The purpose of this publication is to provide tutorial material not only for the person with some knowledge of computer programming, but also for the novice who knows little or nothing about data processing.
The first chapter is written solely for the novice. A reader who is familiar with basic programming techniques should skip the first chapter, and begin reading at Chapter 2, "Basic Elements of PL/I."
Chapter 1, "Communicating with a Computer," touches on machine language and introduces the concept of symbolic programming. The basic techniques of programming are illustrated by using symbolic instructions, rather than PL/I, because certain PL/I statements can generate so much single-instruction coding that the details of some of the techniques are hidden.
Further information concerning PL/I can be found in the following publications: *IBM Operating System/360 PL/I Language Specifications*, Form C28-6571; *A Guide to PL/I for FORTRAN Users*, Form C20-1637. (76 pages)
- C28-6809 PL/I Subset Language Specifications** 29
PL/I is a programming language designed to meet the needs of both commercial and scientific programmers. The PL/I Subset is a self-contained portion of PL/I.
This publication provides a description of the features in the PL/I Subset language. It is intended to indicate the scope of the language and the direction of its development. This manual should not be construed as a list of the features to be provided with any particular implementation. (117 pages)
- C28-6810 IBM System/360 Model 44 Programming System—Concepts and Facilities** 36
This publication describes the facilities provided by the IBM System/360 Model 44 Programming System.
The Model 44 Programming System consists of a FORTRAN compiler, an assembler, a supervisor, and system support programs. It provides FORTRAN and assembler language processing and program execution in a monitored environment, with automatic job-to-job transition, interruption handling, and input/output supervision. The system has facilities for the creation and maintenance of libraries and the manipulation of their contents. It also provides extensive job control and program segmentation capabilities for flexibility and versatility in the preparation of programs for execution. (47 pages)
- C28-6811 IBM System/360 Model 44 Programming System—Assembler Language** 21
This publication contains specifications for the IBM System/360 Model 44 Programming System Assembler Language.
This assembler language is used to write programs for the Model 44. The IBM System/360 Model 44 Programming System Assembler Program processes the language and provides auxiliary functions useful in the preparation and documentation of a program. (73 pages)
- C28-6812 IBM System/360 Model 44 Programming System Guide to System Use** 36
This publication contains detailed information for preparing programs to be executed under the IBM System/360 Model 44 Programming System. It discusses and illustrates the system's requirements, its capabilities, and the control statements and supervisor calls that are used with it.
A prerequisite publication is the *IBM System/360 Model 44 Programming System: Concepts and Facilities*, Form C28-6810. (37 pages)
- C28-6813—IBM System/360 Model 44 Programming System Guide to System Use for FORTRAN Programmers** 25
This publication describes how to use the Model 44 Programming System to compile and execute programs written in the IBM System/360 FORTRAN IV language. A discussion of program optimization and of the restrictions of the Model 44 FORTRAN IV compiler is also included.
This publication is directed primarily at programmers who are familiar with the FORTRAN IV language. Previous knowledge of the Model 44 Programming System is not required. (111 pages)
- C28-6814 IBM System/360 Model 44 Programming System—Systems Programmer's Guide** 36
This publication describes how to construct an IBM System/360 Model 44 Programming System, and how to modify and extend its capabilities.
Among the subjects discussed in this publication are:
1. How to construct and edit a Model 44 Programming System.
2. How to write an accounting routine and incorporate it into the system.
3. How to define the input/output configuration at IPL time.
4. How to write routines at the Execute Channel Program (EXCP) level of the input/output facilities.
5. How to expand the user communication region. (65 pages)
- C28-6815 IBM System/360 Model 44 Programming System** 36
This publication provides the operator of the IBM System/360 Model 44 with the information necessary to run the Model 44 under control of the IBM System/360 Model 44 Programming System. It is divided into an Introduction, four sections, and an Appendix.
The first section describes the operator's function in making unit assignments. The second section describes Model 44 operation under control of the Model 44 Programming System. It contains information on the Initial Program Loading (IPL) Procedure and explains the commands that the operator may issue to the system. The third section describes the operation of the six stand-alone programs provided with the programming system. The fourth section discusses several miscellaneous operating procedures. The Appendix lists system-to-operator messages, with explanations of the necessary operator responses. It is assumed that the operator is familiar with the basic operation of the Model 44. (92 pages)
- C30-2001 IBM System/360 Operating System—Basic Telecommunications Access Method** 30
This publication describes the Basic Telecommunications Access Method (BTAM) used with the System/360 Operating System control program. BTAM provides Read/Write level macro instructions for the assembler-language programmer who is implementing programs for telecommunications applications such as data acquisition, message switching, and inquiry processing.
Included are macro-instruction formats and descriptions and specific information on terminal-dependent considerations. A complete sample program illustrates problem program design for a simple message switching application. (71 pages)
- C30-2002 IBM System/360 Operating System Queued Telecommunications Access Method—Message Control Program** 30
This publication provides information concerning the use of the Queued Telecommunications Access Method (QTAM) within Option 2 (Multi-programming with a Fixed Number of Tasks) of the System/360 Operating System, to support a telecommunications application.

This information facilitates the construction of a QTAM message control program by the problem programmer. Complete descriptions of QTAM macro-instructions are included.

For detailed information on the services provided by QTAM to support a message processing program, refer to *IBM System/360 Operating System QTAM Message Processing Program Services*, Form C30-2003. (112 pages)

C30-2003 IBM System/360 Operating System Queued Telecommunications Access Method—Message Processing Program Services 30

This publication provides information on how to use the Queued Telecommunications Access Method (QTAM) within Option 2 (Multiprogramming with a Fixed Number of Tasks) of the System/360 Operating System, to support a telecommunications application. Services provided by QTAM in support of a message processing program are described in detail, including the facilities provided to establish the interface to a QTAM message control program.

For detailed information on the QTAM facilities provided for the construction of a message control program, refer to the publication, *IBM System/360 Operating System, QTAM Message Control Program*, Form C30-2002. (22 pages)

C30-2004 IBM System/360 Operating System Basic Telecommunications Access Method Version 2 30

This publication describes the Basic Telecommunications Access Method (BTAM) used with the System/360 Operating System control program. BTAM provides Read/Write level macro-instructions for the assembler-language programmer who is implementing programs for telecommunications applications such as data acquisition, message switching, and inquiry processing.

Included are macro-instruction formats and descriptions and specific information on terminal-dependent considerations. A complete sample program illustrates problem program design for a simple message switching application.

For titles and abstracts of associated publications see the *IBM System/360 Bibliography*, Form A22-6822. (117 pages)

C30-2005 IBM System/360 Operating System Queued Telecommunications Access Method Message Control Program Specifications for a Future Version 30

This publication contains specifications on the use of a future version of the Queued Telecommunications Access Method (QTAM) and the IBM System/360 Operating System to support telecommunications applications. This future version of QTAM will include Communication Serviceability Facilities and the Autopoll capability. Information in this publication will facilitate the construction of a QTAM message control program by the problem programmer. Complete descriptions of QTAM macro-instructions are included.

The information in this manual should be used for planning purposes only. A separate publication, *IBM System/360 Operating System, QTAM Message Control Program*, Form C30-2002 describes the current version of QTAM.

For detailed information on the services provided by QTAM to support a message processing program, refer to *IBM System/360 Operating System QTAM Message Processing Program Services*, Form C30-2003. (151 pages)

C30-5001 IBM System/360 Disk Operating System Basic Telecommunications Access Method 30

This publication describes the Basic Telecommunications Access Method (BTAM) used with the System/360 Disk Operating System (DOS) control program. BTAM provides READ/WRITE level macro instructions for the assembler-language programmer who is implementing programs for telecommunications applications.

Included are macro instruction formats and descriptions and specific information on device-dependent considerations.

For titles and abstracts of associated publications see the *IBM System/360 Bibliography*, Form A22-6822. (160 pages)

C30-5002 IBM System/360 Disk Operating System Extended—QTAM Message Control Program 30

This publication provides information on how to use the Queued Telecommunications Access Method (QTAM) and the IBM System/360 Disk Operating System Extended for a telecommunications application. Complete descriptions of QTAM macro-instructions are included along with information to aid the problem programmer in constructing a QTAM message control program.

For detailed information on the services provided by QTAM to support a message processing program, refer to the publication, *IBM System/360 Disk Operating System Extended, QTAM Message Processing Program Services*, Form C30-5003. (104 pages)

C30-5003 IBM System/360 Disk Operating System—QTAM Message Processing Program Services 30

This reference publication provides information on how to use the Queued Telecommunications Access Method (QTAM) and the System/360 Disk Operating System for a telecommunications application. Services provided by QTAM in support of a message processing program are described in detail, including the facilities provided to establish the interface to a QTAM message control program. Specifications on audio applications are included to provide preliminary information about a future version of QTAM and are to be used for planning purposes only.

The QTAM facilities provided for the construction of a message control program are presented in two separate publications:

IBM System/360 Disk Operating System, QTAM Message Control Program, Form C30-5002, describes the current version of QTAM.

IBM System/360 Disk Operating System, QTAM Message Control Program Specifications for a Future Version, Form C30-5004, contains preliminary specifications on future versions of QTAM.

For detailed information on a message control program, refer to the appropriate publication.

For titles and abstracts of other associated publications, see the *IBM System/360 Bibliography*, Form A22-6822. (36 pages)

C30-5004 IBM System/360 Disk Operating System—QTAM Message Control Program Specifications for a Future Version 30

This reference publication contains preliminary specifications on how to use future versions of the Queued Telecommunications Access Method (QTAM) and the IBM System/360 Disk Operating System for a telecommunications application. The future versions will extend QTAM support to include Communication Serviceability Facilities and the Audio Response Units (ARU).

Complete descriptions of QTAM macro instructions are included along with information to aid the problem programmer in constructing a QTAM message control program.

This manual should be used for planning purposes only. A separate publication, *IBM System/360 Disk Operating System, QTAM Message Control Program*, Form C30-5002, describes the current version of QTAM.

For detailed information on the services provided by QTAM to support a message processing program, refer to the publication *IBM System/360 Disk Operating System, QTAM Message Processing Program Services*, Form C30-5003.

For titles and abstracts of other associated publications, see *IBM System/360 Bibliography*, Form A22-6822. (192 pages)

C33-4000 IBM System/360 Operating System ALGOL Programmer's Guide 26

Program Numbers:
360S-AL-531—*Compiler*
360S-LM-532—*Library Routines*

This publication describes how to compile, linkage edit and execute a program written in the System/360 Operating System Algorithmic Language (ALGOL). It includes an introduction to the operating system and a description of the information listings that can be produced, the job control language, and the subroutine library. (63 pages)

C50-0001 The IBM 2701 Data Adapter Unit and ASCII AUTODIN Adapter RPQ F 16124 Principles of Operations 13

This manual provides information concerning the operation of the IBM 2701 Data Adapter Unit and the ASCII Adapter RPQ F 16124. The manual is divided into five sections, a glossary, and six annexes.

The first section gives a general description of the 2701 and the AUTODIN Adapter, the functional organization of the 2701 and the configuration of the 2701.

The second section describes the operation of the 2701 with System/360 Model 20. Subjects discussed here include communications line addressing, channel operation, and i/o instructions concerning the 2701 for the Model 20.

The third section describes the operation of the 2701 with System/360 for Models 30 and above. Subjects discussed here include communications line addressing, multiplexor and selector channel operation, and i/o instructions concerning the 2701 for Models 30 and above.

The fourth section covers the ASCII AUTODIN Adapter. A complete description of the operation of the adapter is made which includes transmit and receive operation sequences, status and sense bytes, line interfaces, and the operators panel.

The fifth section covers the operating procedures of the 2701 Data Adapter Unit and the ASCII AUTODIN Adapter.

The glossary contains definitions of certain terms used in this manual which may not be in common use.

The annexes include charts on the ASCII code, representation of the ASCII code to System/360 codes, specifications on the 2701, and two electrical interface drawings. (48 pages)

E20-0179 Generalized Information System—Application Description 60

The Generalized Information System (GIS) is an IBM-developed set of programs for System/360 designed to support a wide variety of applications by providing facilities for defining, maintaining, and processing data files. As an operational set of programs, GIS provides

processing modules that are adapted to perform a given job on the basis of fixed or variable job parameters identified at the time the job is introduced and on comprehensive, stored data and processing controls. (42 pages)

E20-0188 Retail IMPACT—Inventory Management Program and Control Techniques—Application Description 60

The purpose of this manual is to describe the Retail IMPACT System for the retail industry. The Retail IMPACT System actually consists of two separate systems, one for staple and one for fashion merchandise. Either or both of these systems may be implemented. Programs for the systems are enumerated in the manual.

The manual is divided into chapters which cover topics such as: a general statement of the problems of retail inventory management; simulation, and its uses; ordering parameters, methods of forecasting and forecasting techniques; record maintenance, purchase order generation and operating and management reporting; design considerations; and implementation. Where appropriate, these topics are discussed separately for the fashion and staple systems. Also, graphs and report examples supplement the text, and a glossary of terms peculiar to the retail environment is included in the manual. (104 pages)

E20-0196 System/360 Mortgage Loan Program—Application Description 60

The program is designed to provide the major processing for mortgage loan accounting operations at mutual savings banks, savings and loan associations, commercial banks, mortgage servicing companies, and other users. These programs will significantly help to minimize the time, expense, and effort in converting from manual systems, unit record equipment, or earlier-generation computers to System/360.

An operation system using these programs will provide for servicing investor accounts with the necessary related reports and will handle many types of irregular transactions. The system enables management to keep close surveillance on the bank's entire loan portfolio and to meet reporting requirements of the Federal Home Loan Bank Board including delinquent account and slow loan analyses. Extensive audit control procedures are maintained throughout all programs, and attention is focused immediately on unusual conditions that may arise in individual account or control records.

This manual describes system design features, presents the highlights of the individual programs, and discusses reports that the user may wish to develop. (18 pages)

E20-0228 Optimum Bond Bidding User's Manual 60

Program Number: 360A-FI-06X

This program has been designed to help underwriters determine the coupon schedule and associated values for a bid on a new bond issue. A mathematical procedure is used which develops an optimal set of coupon rates. The optimization procedure minimizes the net interest cost or effective rate whichever is applicable, while remaining within the constraints established by the issuer and those established by the underwriter. A number of options are provided which help the user obtain bidding information for issues with various characteristics.

This manual contains a general description of the program, including all mathematical formulas, machine configuration, general systems chart, input/output de-

scription, sample problem, operating instructions, and halt and message list.

The manual is so structured that the user may concentrate on sections germane to his interest. (119 pages)

E20-0246 Demand Deposit Accounting Application Description 60

Program Number: 360A-FB-15X

This manual describes the scope and capabilities of System/360 Demand Deposit Accounting. It covers (1) requirements for a demand deposit application in either a single-bank or multi-bank environment, (2) results from and advantages of using the application programs, (3) accomplishments of each program, (4) information on getting started, (5) record layouts and reports produced, and (6) machine requirements, sample timings, and disk pack requirements. (36 pages)

E20-0256 IBM System/360 Text Processor COMPOSITION/360 Application Description 60

This manual discusses one component application program, which forms the basis for a comprehensive text composition system.

COMPOSITION/360 acts in conjunction with user-supplied programs and the full facilities of the Disk Operating System for System/360. It consists of control and functional routines that accept input from a user-prepared disk-resident file, produces generalized justified output records, and stores them in a specified disk area. If word division capabilities are required, the HYPHENATION/360 program is linked with COMPOSITION/360. (32 pages)

F20-0009 Summary of System/360 Transition Aids 50

This manual describes transition aids provided by IBM to assist users in the conversion of programs and data files to the System/360. Each transition aid is described with respect to general specifications, application, and performance to assist in determining the applicability of each aid in various transition situations. References are provided to other publications containing more detailed information on each transition aid. (31 pages)

F20-8172 Bibliography of Data Processing Techniques 00

This bibliography and associated classification system provide a means to identify selected IBM publications which, either wholly or in part, document data processing techniques information. The listing of any given publication in this bibliography, however, does not preclude its appearance in other reference bibliographies such as the Systems Reference Library.

Part I of this bibliography lists publications by form number within major subject classification. Part II contains abstracts of the publications in form number sequence only. (18 pages)

F22-6517 Introduction to IBM Data Processing Systems 99

This manual presents certain common fundamental concepts and operational principles associated with all IBM Data Processing Systems, regardless of size, type or basic use. These concepts and principles are presented as an aid in developing a basic knowledge of computers. The manual is designed for use in training programs where a basic knowledge of computers is the end objective or is a prerequisite to the detailed study of a particular IBM system. (96 pages)

F24-1052 Physical Planning General Information 15

Discusses the general aspects of physical planning as they relate to the entire field of IBM Data Processing Equipment. This publication contains requirements and recommendations for site selection, air conditioning, structural engineering, electrical power, lighting, noise reduction, floor planning, and safety. The publication is intended primarily for Customer personnel who are responsible for planning IBM Data Processing Equipment site facilities. (40 pages)

H20-0126 Advanced Life Information System—Application Description 60

This system represents a new insurance information systems approach to the maintenance, processing, and servicing of individual life insurance contracts. It provides for immediate direct access inquiry and a base for a teleprocessing communications network.

The system uses a modular programming technique to process all scheduled and nonscheduled transactions, to provide figures for annual and interim statement purposes, to update policies with cash values, dividends, and other forms of participation, and to update policies with renewable term premiums on or just before anniversary. Internal and remote interrupt capabilities provide policy status on loan, surrenders, and mode premium values.

Basically, the information contained in this manual includes a general description of the system, insurance statements describing the approach, and a discussion of the policy master record. The manual is intended to define for the reader the amount of information needed to establish the system and to serve as a guide for his early planning. (47 pages)

H20-0136 System/360 Mathematical Programming System Application Description 60

This is a general purpose system which utilizes linear programming techniques for determining an optimum value of a function of many variables when these variables are subject to constraints. The system includes MARVEL, a convenient tool for matrix generation, management report writing, solution analysis, and file maintenance. Use of the mathematical programming system might involve building the mathematical model, finding an optimal solution, determining the ranges of the objective function elements and right-hand-side elements for which the solution is optimal, computing a sequence of related optimal solutions as selected constraints are progressively changed or costs progressively varied, and preparing a management report. Application areas include material allocation, blending of ingredients, production or refinery scheduling, distribution and shipping, machine loading, waste reduction, and many other areas. (23 pages)

H20-0149 Online Teller Program, System/360—Application Description 60

This program furnishes System/360 programming support for 1060 systems and minimizes expenses in installing and maintaining teller terminal complexes. The Application Description gives an overview of the program, lists its advantages, discusses applications and machine-oriented concepts, presents control and audit procedures, and contains other standard sections, plus a glossary of terms. (9 pages)

H20-0165 Communication Control Application Program Application Description 60

This manual introduces a program to switch administrative messages originating at remote terminal loca-

tions and destined for one or more terminal locations in the same network. A switching center maintains control of the network and performs various checks to ensure against message loss or duplication. The program provides queuing messages for output and logging messages for later retrieval. Messages destined to inoperative terminals are held in a queue until delivery is possible. The program also provides various supervisory controls for efficient operation of the system. (14 pages)

H20-0166 System/360 Scientific Subroutine Package Version II—Application Description 60

Program Number: 360A-CM-03X

The Scientific Subroutine Package (SSP) is a collection of over 100 FORTRAN subroutines divided, for the sake of presentation, into two groups: statistics and mathematics. It is a collection of input/output-free computational building blocks that can be combined with a user's input, output, or computational routines to meet his needs. The package can be applied to the solution of many problems in industry, science, and engineering.

Version 2 of the Scientific Subroutine Package for System/360 incorporates and extends the capabilities of the original SSP/360. This version provides over 80 new mathematical subroutines in both single- and double-precision FORTRAN. Typical of the new capabilities is Hamming's modified predictor-corrector technique for the solution of N first-order ordinary differential equations and the Cooley-Tukey method for fast Fourier transforms of real and complex data.

The Application Description presents the purpose and objectives of the program, a list of subroutines, machine configuration, programming systems, precision, and a list of reference material. (24 pages)

H20-0173 System/360 Wholesale IMPACT Program Library—Application Description 60

Program Number: 360A-DW-05X

This manual describes use of the System/360 Wholesale IMPACT Program Library to implement the IMPACT system of scientific inventory management. The IMPACT system provides the means of deciding when to order and how much to order for items in inventory so as to minimize the total cost of inventory, purchasing and receiving, and lost discounts for any specified level of service. This is accomplished by use of probability science in combination with an IBM System/360. (9 pages)

H20-0179 N/C 360 AUTOSPOT Application Description 60

The purpose of this manual is to provide an introduction to the AUTOSPOT language for users of numerically controlled machine tools. Included in this manual are language structure and elements, and system configuration. The appendix describes the interpretation of machining statements and contains the postprocessor interface. (38 pages)

H20-0180 N/C 360 AD APT Application Description 60

The IBM N/C 360 adaptation of APT for small computers (AD-APT) uses a symbolic language to simplify the preparation of instructions for numerically controlled machine tools. The AD-APT processor prepares intermediate data for a user-written postprocessor program. (39 pages)

H20-0181 N/C 360 APT Application Description 60

The IBM System/360 APT uses a symbolic language to simplify the preparation of instructions for numerically controlled machine tools. The APT processor prepares intermediate data for a user-written postprocessor program. (94 pages)

H20-0182 Medical Information System Programs—Application Description 60

The success of any service organization is in proportion to its ability to respond quickly and accurately to the demands placed upon it. Probably no organization needs this ability more than does the hospital. Electronic information processing can provide an answer to the recurring question, "How can service be improved with limited resources?"

The medical information system programs (MISP) represent an application of information processing equipment to answer the need. MISP is designed to assist in the installation of a teleprocessing system (hospital information system) linking the many different service areas in a hospital where complete and prompt patient care is a requirement. These areas are the nursing station, admitting, pharmacy, clinical laboratories, X ray, electrodiagnostics, dietary, operating room, central supply, and others.

This manual generally describes (1) the purpose and functions of a hospital information system, and (2) the components of MISP and the method of constructing a system using them. (16 pages)

H20-0186 General Purpose Simulation System/360—Application Description 60

This manual discusses the role of GPSS in system simulation, briefly describes the operation of the GPSS program, and points out its application scope. A final section describes the new entities, block types, expanded features, and system requirements of GPSS/360. (18 pages)

H20-0194 System/360 Data Conversion Utilities—Application Description 60

This publication describes the general capabilities of IBM System/360 Data Conversion Programs and, through examples, illustrates their use.

The IBM System/360 Data Conversion Programs provide an effective and flexible capability for converting current IBM system data files to System/360 data sets. Designed as general purpose utility programs utilizing control cards, the programs will accept data sets from current IBM systems tape or DASD devices and write these data sets in the proper formats on System/360 tape or DASD devices. The programs have data transformation capability that allows maximum flexibility in resystemizing data sets for System/360. (49 pages)

H20-0197 System/360 Bill of Material Processor—Application Description 60

Program Number: 360-ME-06X

The IBM System/360 Bill of Material Processor is an implementation package used to create and maintain a central information system for a manufacturing organization. The package will contain (1) generalized programs to organize and maintain part number (inventory, etc.), product structure, manufacturing routing, and work center data on direct access files, and (2) logic diagrams explaining the retrieval and use of the information in manufacturing applications.

This manual contains a general description of the application, the machine configuration, general systems charts, and a discussion of input/output files. A section

that contrasts this package to the IBM 1440-1311 Bill of Material Processor (1440-ME-02X) is provided for 1440 users who may wish to upgrade their present system to a System/360. (38 pages)

H20-0199 Flowchart—Application Description 60

Program Number: 360A-SE-22X

The IBM System/360 Flowchart is a System/360 program designed to produce program flowcharts. This documentation aid operates under the IBM Disk Operating System (DOS) and is intended to minimize the planning and effort required to produce and maintain program documentation.

It enables the user to:

1. Produce clear, standardized, easily reproduced computer-generated flowcharts.
2. Facilitate program development by keeping flowcharts continually up to date.
3. Standardize flowcharting techniques.

This publication describes the purposes and objectives of the IBM System/360 Flowchart and explains its uses. It contains a general description of the application, a discussion of the input language, an explanation of System/360 Flowchart processing, a detailed description of the statements, and miscellaneous application information.

For detailed information, the user is referred to the User's Manual. (25 pages)

H20-0202 Student Scheduling System/360 Application Description 60

Student Scheduling System/360 is a class section assignment package for scheduling students in secondary schools, vocational schools, and junior colleges. After a school has created a master schedule of course offerings, the system processes student requests to create student schedules and class lists.

This scheduling package includes two auxiliary programs. A Tally program and a Conflict Matrix program furnish the school administrator with data useful to master schedule creation. The Tally run lists the total number of students requesting each course, and the Conflict Matrix points out potential scheduling conflicts.

The new package contains improvements over many similar programs. Greater flexibility is achieved by inclusion of many new user options, such as better study hall control, common-course scheduling, an expanded prerun edit, and alternate course substitution. Parameters controlling number of periods per day, number of courses offered, sections per course, and total number of sections have been significantly enlarged. Features of the new IBM System/360 are also utilized to increase overall program effectiveness. (27 pages)

H20-0205 System/360 Scientific Subroutine Package—Application Description 60

Program Number: 360A-CM-03X

The Scientific Subroutine Package (SSP) is a collection of over 100 FORTRAN subroutines divided, for the sake of presentation, into three groups: statistics, matrix manipulation, and other mathematics. It is a collection of input/output-free computational building blocks that can be combined with a user's input, output, or computational routines to meet his needs. The package can be applied to the solution of many problems in industry, science, and engineering. (160 pages)

- H20-0210 Project Management System for IBM System/360—Application Description** 60
- PMS/360 is a highly modular set of computer program routines, each performing one function common to many management applications. It is open-ended—that is, the number of functions under PMS/360 can be expanded and added to. It is versatile—that is, the user can control program logic without resorting to reprogramming. Output reports can be defined with a single set of procedural statements and can be revised with every computer run if required. The computer code itself is written in a way that simplifies modification, if this ever becomes necessary. At present, PMS/360 contains the following three modules: a Network Processor, a Cost Processor, and a versatile Report Processor. In suitable combinations these processors will accomplish the data processing required in critical path analysis, PERT, and PERT Cost. (29 pages)
- H20-0217 System/360 COBOL Edit on the 1401 Program Reference Manual** 60
- Program Number: 1401-SE-13X*
- This program is of benefit to System/360 COBOL users in detecting syntactical errors in System/360 COBOL program statements before compilation of the System/360.
- The program reference manual contains complete data on the application description, programming information, and operating instructions. Systems information is not presented in detail. (22 pages)
- H20-0220 Student Scheduling System/360 The Tally and Conflict Matrix Programs—User's Manual** 60
- Program Number: 360A-US-06X*
- Use of the Tally and Conflict Matrix programs of Student Scheduling System/360 is facilitated by this combined programmer's and operator's manual. These two programs furnish the school administrator the data needed to create the best possible master schedule of course and section offerings, prior to use of the Scheduler Program.
- The Tally program accumulates the number of students requesting each course, by sex and by grade. These counts are used to determine how many sections of a given course are required. Those courses shown to require one- or two-section offerings are entered into the Conflict Matrix program, which is then used to point out potential scheduling conflicts.
- The programmer's section of this manual contains program systems charts, general program description, i/o description, program modification aids, sample problem, etc. The operator's section contains program setup sheet, console operator's instructions, message list, storage maps, and restart procedures. (22 pages)
- H20-0222 System/360 Project Control System—Application Description** 60
- This manual presents a brief description of a project control system, and discusses the design, features, and input/output characteristics of a computer program developed to serve as the data processing element of such a system. Although the IBM System/360 Project Control System is designed primarily for those areas of government and industry concerned with construction, repair, or maintenance, its features are such that it can meet the critical path requirements of a broad range of users, regardless of industry. (22 pages)
- H20-0223 IBM System/360 Attached Support Processor System (ASP) System Description** 60
- The Attached Support Processor (ASP) system is a multi-processor operating system that provides a compatible extension to Operating System/360. Designed primarily for the use of the large scientific customer whose workload typically consists of many jobs of short duration, ASP includes features to facilitate the use of the 709X Emulator and OS/360 integrated into the same operational environment.
- An outgrowth of the 704X-709X Directly Coupled System (DCS), ASP incorporates the operational characteristics of DCS while diverging from it in implementation.
- This manual contains a general description, machine configuration, control cards and program deck format, system flow, and list of input/output files. (18 pages)
- H20-0232 System/360 Data Conversion Utility I Programmer's Manual** 60
- Program Number: 360A-SE-15X*
- This program is useful in converting IBM 1620/1401/1440/1460/1410/7010 card, tape, and DASD data files to System/360 tape or DASD data sets.
- The Programmer's Manual presents a general and detailed description of the program and its operation under the IBM System/360 Basic Operating System (8K disk). In addition, the individual modules, standard program interfaces, and incorporation of user modules are discussed.
- The reader should be familiar with IBM System/360 Data Conversion Utility I—Application Description, Form H20-0194, IBM Basic Operating System/360 Assembler with Input/Output Macros (8K Disk), Form C24-3361, and IBM Basic Operating System/360 Programmer's Guide, Form C24-3372. (86 pages)
- H20-0233 System/360 Data Conversion Utility I Operator's Manual** 60
- Program Number: 360A-SE-15X*
- This program is useful in converting IBM 1620/1401/1440/1460/1410/7010 card, tape, and DASD data files to System/360 tape or DASD data sets.
- The Operator's Manual presents a program setup sheet, console operating instructions, message list, storage maps and restart procedures.
- The reader should be familiar with System/360 Data Conversion Utilities—Application Description, Form H20-0194, IBM System/360 Data Conversion Utility I—Programmer's Manual, Form H20-0232, and IBM Basic Operating System/360 Operating Guide, Form C24-3450. (32 pages)
- H20-0239 Student Scheduling System/360 The Scheduler Program User's Manual** 60
- Program Number: 360A-US-07X*
- Student Scheduling System/360 is a class section assignment program for scheduling students in secondary schools, vocational schools, and junior colleges. After a school has created a master schedule of course offerings, the system processes student requests to create student schedules and class lists.
- This manual contains a detailed explanation of the Scheduler program within the scheduling application framework, with special emphasis on input data and output reports. It also includes an "Operator's Section," which describes operational setup and running procedures. (64 pages)
- H20-0240 System/360 Continuous System Modeling Program—Application Description** 60
- Program Number: 360A-CX-16X*
- This is an IBM System/360 program for the simulation of continuous systems. It provides an application-oriented input language that accepts problems expressed in the form of either an analog block diagram or a system of ordinary differential equations. Data input and output are facilitated by means of application-oriented control statements.
- This manual contains a general description of the application, the machine configuration, a general systems chart, and a sample problem. (32 pages)
- H20-0242 Synchronous Transmit-Receive Access Method for OS/360 Application Description** 60
- This manual describes the macro-instruction support which enables a System/360 with OS/360 to communicate with STRA-type terminal devices. The level of support is discussed, and the language is briefly described. (12 pages)
- H20-0243 Synchronous Transmit-Receive Access Method for DOS/360 Application Description** 60
- This manual describes the macro-instruction support which enables a System/360 with DOS/360 to communicate with STRA-type terminal devices. The level of support is discussed, and the language is briefly described. (7 pages)
- H20-0244 Communications Control Application Program Programmer's Manual** 60
- Program Number: 360A-SC-01X*
- This manual is intended to supply an overall understanding of the CCAF system concepts. It contains sufficient information to allow a systems programmer to plan and design a CCAF installation. Information necessary for implementing any modifications prior to installation is contained in detail in the System Manual supplied with delivery of the system from the Program Information Department. (52 pages)
- H20-0245 Communications Control Application Program Operator's Manual** 60
- Program Number: 360A-SC-01X*
- This manual is intended for use as a console operator's guide. The information herein includes those items necessary for daily operation of the CCAF system. The manual presents loading instructions, a section describing each console control order with associated printed outputs, header error TRX outputs, and error outputs that may occur during operation. (28 pages)
- H20-0246 System/360 Bill of Material Processor Version 2—Programmer's Manual** 60
- Program Number: 360A-ME-06X*
- The IBM System/360 Bill of Material Processor is an implementation package used to create and maintain the central data files for a manufacturing organization.
- This manual includes (1) a brief discussion of system definition, (2) a checklist of things to be done before modifying the file organization and maintenance programs or preparing retrieval programs, (3) descriptions of all i/o files, (4) explanation and operating in-

structions for the sample problem, (5) descriptions of all the file organization and maintenance programs and instructions for their modification, and (6) descriptions and logic diagrams for selected user retrieval programs. (400 pages)

H20-0254 System/360 Bill of Material Processor Version 2—Operator's Manual 60

Program Number: 360A-ME-06X

The IBM System/360 Bill of Material Processor is an implementation package used to create and maintain the central data files for a manufacturing organization.

This operator's manual for the file organization and maintenance programs contains detailed operating information for:

1. Master File Creation and Maintenance Modules
2. Chain File Creation and Maintenance Modules
3. Bill of Material Processor Input/Output Modules to be used with user-prepared retrieval programs
4. File reorganization modules
5. A set of four specialized Bill of Material Processor utility programs

In addition there are specific operating procedures for IBM Basic Operating System/360 control programs and the IBM Disk Operating System/360 control programs as they apply to the Bill of Material Processor. (96 pages)

H20-0255 System/360 Wholesale IMPACT Program Library—User's Manual 60

Program Number: 360A-DW-05X

This program library provides a distributor with the information necessary to determine when and how much to order, thus minimizing the total cost of carrying inventory, purchasing and receiving, freight charges, and lost discounts for any specified level of service. The program library uses probability science in combination with an IBM System/360.

The IMPACT programs are grouped into two categories: initializing and estimating programs, and operating programs. Five programs are provided for initializing and estimating purposes: (1) Edit Run, (2) Mean Absolute Deviation and Forecast Model Run, (3) Order Quantity and Order Model Run, (4) Safety Stock and Safety Factor Run, and (5) Report Generator Run. Three programs are provided for operating purposes: (1) Service Point and Variable Interval Allocation Run, (2) Fixed Interval Allocation Run, and (3) Allocation Print Run.

The User's Manual contains a general description of the overall program and a detailed description of each subprogram. (128 pages)

H20-0256—System/360 Wholesale IMPACT Program Library—Operator's Manual 60

Program Number: 360A-DW-05X

This program library provides a distributor with the information necessary to determine when and how much to order, thus minimizing the total cost of carrying inventory, purchasing and receiving, freight charges, and lost discounts for any specified level of service. The program library uses probability science in combination with an IBM System/360 Data Processing System.

The IMPACT programs are grouped into two categories: initializing and estimating programs, and operating programs. Five programs are provided for initializing and estimating purposes: (1) Edit Run, (2) Mean Absolute Deviation and Forecast Model Run, (3) Order Quantity and Order Model Run, (4) Safety Stock and Safety Factor Run, and (5) Report Generator Run. Three programs are provided for operating

purposes: (1) Service Point and Variable Interval Allocation Run, (2) Fixed Interval Allocation Run, and (3) Allocation Print Run.

The Operator's Manual contains a general description of the overall program and a detailed description of each subprogram. (56 pages)

H20-0258 System/360 Data Conversion Utility III—Programmer's Manual 60

Program Number: 360A-SE-26X

These macros will be helpful in converting IBM 705/1401/1410/1440/1460/1620/7010/7040/7044/7070/7074/7080/7090/7094 card or tape data files to System/360 tape data sets.

This manual presents a general and detailed description of the program and its operation under the IBM Tape Operating System/360 (16K Tape). In addition, the macro capabilities, standard program interfaces, and incorporation of user instructions are discussed.

The reader should be familiar with the corresponding Application Description, Form H20-0194, and Operator's Manual, Form H20-0259, and with those Basic Operating System/360 (16K Tape) manuals listed in the Application Directory. (88 pages)

H20-0262 System/360 Demand Deposit Accounting—Operator's Manual 60

Program Number: 360A-FB-15X

This manual contains operating instructions for the runs that make up the System/360 Demand Deposit Accounting application program. It includes instructions for preparation of all i/o units, and, for each program, a program setup sheet, operating instructions, operator message list, and core map. (124 pages)

H20-0263 System/360 Demand Deposit Accounting—Programmer's Manual 60

Program Number: 360A-FB-15X

This program is adaptable by commercial banks to accomplish demand deposit accounting in either a single or multi-bank environment. The program provides for conversion of IBM 1440 series disk and tape balance and name/address records. Also included are programs to collect and display historical profit and loss information for selected accounts or groups of accounts.

For each program, this manual presents a program abstract, program systems chart, and general description. Where applicable, some program modification aids are included.

The input/output section includes a summary for all files by type (card, disk, tape, printer, and MICR) and a visual record layout and description of file functions. (220 pages)

H20-0285 System/360 Data Conversion Utility III, Version 2 Programmer's Manual 60

Program Number: 360A-SE-26X

These macros will be helpful in converting IBM 705/1401/1410/1440/1460/1620/7010/7040/7044/7070/7074/7080/7090/7094 card or tape data files to System/360 tape or DASD data sets.

This manual presents a general and detailed description of the program and its operation under the IBM System/360 Tape Operating System and the IBM System/360 Disk Operating System. In addition, the macro capabilities, standard program interfaces, and incorporation of user instructions are discussed.

The reader should be familiar with the corresponding Application Description, Form H20-0194, and Operator's Manual, Form H20-0286, and with those IBM System/360 manuals listed in the Application Directory. (93 pages)

H20-0286 System/360 Data Conversion Utility III, Version 2 Operator's Manual 60

This program will be useful in converting IBM 705/1401/1410/1440/1460/1620/7010/7040/7044/7070/7074/7080/7090/7094 card and tape data files to System/360 tape or DASD data sets.

This manual presents operating procedures, a message list, restart procedures, and a program setup sheet.

The reader should be familiar with the corresponding Application Description, Form H20-0194 and Programmer's Manual, Form H20-0285, and with IBM System/360 Tape Operating System, Operating Guide, Form C24-5021, or IBM System/360 Disk Operating System, Operating Guide, Form C24-5022. (17 pages)

H20-0290 Mathematical Programming System/360 Control Language User's Manual 60

Program Number: 360A-CO-14X

This manual is one of a series of manuals which describe the use of the IBM Mathematical Programming System/360 (MPS/360). It assumes that the user is familiar with the Application Description, Form H20-0136 and IBM Operating System/360 Job Control Language, Form C28-6531. This manual is a prerequisite of MPS/360 Linear Programming User's Manual, Form H20-0291, and the MPS/360 MARVEL Manual (to be published at a later date). This manual describes the organization of the components of MPS/360 and their interface with Operating System/360 (OS/360). It also describes in detail the control language used to communicate a solution strategy for solving a mathematical programming problem to MPS/360, and OS/360 job control language statements necessary to execute MPS/360. (38 pages)

H20-0291 Mathematical Programming System/360 Linear Programming User's Manual 60

Program Number: 360A-CO-14X

This manual provides the system user with the information required to prepare input data and control cards and to interpret the system's output. It is a basic reference document for any user interested in the problems with which the system can help him. All procedures are fully explained in this manual. (116 pages)

H20-0293 System/360 Flowchart User's Manual 60

Program Number: 360A-SE-22X

The IBM System/360 Flowchart is a System/360 program designed to produce program flowcharts. This documentation aid operates under the IBM Disk Operating System (DOS) and is intended to minimize the planning and effort required to produce and maintain program documentation.

It enables the user to:

1. Produce clear, standardized, easily reproduced computer-generated flowcharts.
2. Keep flowcharts continually up to date.
3. Standardize flowcharting techniques.

This reference publication contains the specifications and detailed instructions for using the System/360 Flowchart program. The only prerequisite for reading it is a basic understanding of flowcharting. (56 pages)

- H20-0294 System/360 Flowchart Operator's Manual** 60
Program Number: 360A-SE-22X
 The IBM System/360 Flowchart is a System/360 program designed to produce program flowcharts. This documentation aid operates under the IBM Disk Operating System (DOS) and is intended to minimize the planning and effort required to produce and maintain program documentation.
 It gives the user the ability to:
 1. Produce clear, standardized, easily reproduced computer-generated flowcharts.
 2. Keep flowcharts up to date continually.
 3. Standardize flowcharting techniques.
 This reference publication gives the specifications and detailed information for operating the System/360 Flowchart program. It contains the console operating instructions, job control card deck key, job control card details, halt and message list, a file and storage map, and restart procedures.
 A knowledge of DOS operating procedures, including the use of job control card, is a prerequisite for reading and using this manual.
 For more detailed information about the System/360 Flowchart input language, refer to the User's Manual. (20 pages)
- H20-0302 Shared Hospital Accounting System (SHAS) Application Description** 60
 The Shared Hospital Accounting System (SHAS) provides hospital accounting for a multiple hospital environment. The participating hospitals are connected to the central System/360 facility by teleprocessing terminals.
 SHAS consists of application programs and a supervisory and teleprocessing executive. The application programs are patient billing, accounts receivable, and general ledger including allocation for Medicare. Accounting for both inpatients and outpatients is provided. SHAS determines Medicare insurance proration, facilitating the preparation of Medicare inpatient and outpatient billing forms. (36 pages)
- H20-0304 General Purpose Simulation System/360 Introduction—User's Manual** 60
 This publication provides a basic introduction to the use of the General Purpose Simulation System/360 (GPSS/360). It is written for those individuals who have no previous simulation experience.
 Examples are given throughout the manual to emphasize the basic features of the GPSS/360 program. A complete and detailed description of all the GPSS/360 features may be found in the *General Purpose Simulation System/360 User's Manual*, Form H20-0326. Readers are advised to obtain a copy of the User's Manual when they begin to write more sophisticated models.
 The information presented in this manual should enable most readers to apply the program intelligently within a short period of time. (88 pages)
- H20-0305 System/360 Online Teller Program 32K Capability—Programmer's Manual** 60
Program Number: 360A-FB-16X
 This program furnishes System/360 programming support for 1060 systems and minimizes expenses in installing and maintaining teller terminal complexes. The Programmer's Manual presents the program logic and data definitions for the program. It enables a user to plan modifications to the program to suit his own requirements. (188 pages)
- H20-0309 System/360 APT Numerical Control Processor—Part Programming Manual** 60
Program Number: 360A-CN-10X
 This program has been developed to span the gap between the engineering drawing and the machine tool control system.
 This manual describes APT (Automatic Programmed Tool), a programming system that uses an English-like language to describe a part shown as an engineering drawing. The statements are keypunched into cards, converted by the APT processor into an intermediate format, and then converted to instructions that can be read by the machine tool controller. (113 pages)
- H20-0311 General Purpose Simulation Operating System/360—Operator's Manual** 60
Program Number: 360A-CS-17X
 This publication contains information that will enable the user to link-edit and incorporate the CPSS/360 program into a system for subsequent execution under the control of OS/360. Detailed examples are given for editing the CPSS/360 program into a private JOBLIB or the OS/360 SYS. LINKLIB; several other examples illustrate the OS/360 JOL cards required to execute models that use various features provided by CPSS/360.
 This Operator's Manual describes and illustrates a method (REALLOCATION) whereby the user can reallocate the quantity of CPSS/360 entities and effectively use all available core on a given machine. The various data sets required by CPSS/360 are also listed and described. (37 pages)
- H20-0313 System/360 Data Conversion Utility II, Version 3 (Sequential, Direct Access)—Programmer's Manual** 60
Program Number: 360A-SE-20X
 This program will be useful in converting IBM 705/1410/7010/7040/7044/7070/7074/7080/7090/7094 card, tape, and DASD data files to System/360 tape or DASD data sets.
 This manual presents a general and detailed description of the program and its operation under the IBM Operating System/360. In addition, the individual modules, standard program interfaces, and incorporation of user coding are discussed. (122 pages)
- H20-0314 System/360 Data Conversion Utility II, Version 3 (Direct Access Indexed Sequential)—Operator's Manual** 60
Program Number: 360A-SE-20X
 This program will be useful in converting IBM 705/1410/7010/7040/7044/7070/7074/7080/7090/7094 card, tape, and DASD data files to System/360 tape or DASD data sets.
 This manual presents a program setup sheet, console operating instructions, and a message list. (14 pages)
- H20-0321 Attached Support Processor System (ASP)—Console Operator's Manual** 60
Program Number: 360A-CX-15X
 The Attached Support Processor (ASP) system is a multiprocessor operating system that provides a compatible extension to Operating System/360 (OS/360). Designed primarily for the use of the customer with a large scientific system and a workload typically consisting of many jobs of short duration, ASP includes features to facilitate the use of the 709X Emulator and OS/360 integrated into the same operational environment.
 An outgrowth of the 704X-709X Direct Couple Operating System (DCS), ASP incorporates the operational characteristics of this system, although it diverges from it in implementation.
 This manual contains instructions that will permit the console operator to operate the ASP system. ASP console operation is identical in most respects to IBM System/360 operation. Therefore, to avoid repetition of documentation, the material in this manual has been prepared on the assumption that the operator is familiar with IBM System/360 operation. Details concerning System/360 operations are found in *IBM System/360 Operating System, Operator's Guide*, Form C28-6540, and in its prerequisite and recommended publications. (56 pages)
- H20-0322 Attached Support Processor System (ASP)—Application Programmer's Manual** 60
Program Number: 360A-CX-15X
 The Attached Support Processor (ASP) System is a multiprocessor operating system that extends Operating System/360 (OS/360). Designed primarily for the use of the customer with a large scientific system whose workload typically consists of many jobs of short duration, ASP includes features to facilitate the use of the 709X Emulator and OS/360 integrated into the same operational environment.
 An outgrowth of the 704X-709X Direct Couple Operating System (DCS), ASP incorporates the operational characteristics of this system, although it diverges from it in implementation.
 This manual contains detailed information concerning system concepts, programming considerations, control cards, deck setup, and output. System/360 programming is used for ASP; therefore, to avoid repetition of documentation, the material in this manual has been prepared on the assumption that the programmer is familiar with System/360 programming. Details of System/360 operations are found in *IBM Operating System/360 Job Control Language*, Form C28-6539, and in its prerequisite and recommended publications. (32 pages)
- H20-0323 Attached Support Processor System (ASP)—System Programmer's Manual** 60
Program Number: 360A-CX-15X
 The Attached Support Processor (ASP) system is a multiprocessor operating system that extends Operating System/360 (OS/360). Designed primarily for the use of the customer with a large scientific system whose workload typically consists of many jobs of short duration, ASP includes features to facilitate the use of the 709X Emulator and OS/360 integrated into the same operational environment.
 An outgrowth of the 704X-709X Direct Couple Operating System (DCS), ASP incorporates the operational characteristics of this system, although it diverges from it in implementation.
 This manual contains detailed information concerning the internal operations of the ASP system and includes a functional description, instructions for writing Dynamic Support Programs and for generating the system, and a description of modifications to OS/360 and 709X Emulator programs. (120 pages)
- H20-0325 System/360 Online Teller Program 32K Capability—Operator's Manual** 60
Program Number: 360A-FB-16X
 The Operator's Manual includes operating procedures for the Online Teller program as well as the Conversion, Reorganization, and Control Pack Setup programs. It also contains a discussion of testing aids. (29 pages)

H20-0326 General Purpose Simulation System/360—User's Manual	60	H20-0346 Synchronous Transmit-Receive Access Method for DOS/360 User's Manual	60	The manual contains a general description of ACCAP, a discussion of the overall program conversion process, and some testing experiences with the program. (25 pages)
This publication is an extension and amplification of the CPSS/360 Introductory User's Manual, Form H20-0304. It provides a detailed description and explanation of the component parts and operation of the CPSS/360 program. Examples illustrating the uses of CPSS/360 are given in appropriate sections of the manual. This manual should enable the reader to construct and simulate models using the full capabilities of CPSS/360. (244 pages)		<i>Program Number: 360A-SE-32X</i>		
H20-0327 General Purpose Simulation System/360, Disk Operating System Operator's Manual	60	H20-0347 Synchronous Transmit-Receive Access Method for DOS/360 Operator's Manual	60	H20-0353 IBM System/360 RAX Remote Access Computing System—Application Description
<i>Program Number: 360A-CS-19X</i>		<i>Program Number: 360A-SE-32X</i>		<i>Program Number: 360A-CX-17X</i>
This publication contains information that will enable the user to link-edit and incorporate the CPSS/360 program into a system for subsequent execution under the control of DOS/360.		This publication describes the Synchronous Transmit-Receive Access Method for DOS/360. The STR access method provides macro instructions and routines to support STR transmission under program control. The macro instructions are described for the following functions:		This system is designed to allow multiple concurrent access to a System/360 processor from remote terminals. RAX implements time-sharing techniques for the compilation and execution of user computing problems in FORTRAN and Assembler languages. Also, it provides a Terminal Command Language to provide control of the terminal and to implement the use of the programming languages.
A method (REALLOCATION) whereby the user can reallocate the quantity of CPSS/360 entities and effectively use all available core on a given machine is described and illustrated. The various data sets required by CPSS/360 are also listed and described. (20 pages)		1. Environment definition 2. Line control 3. Data transmission 4. Code conversion		This publication contains a description of the system, the equipment requirements, the system capabilities, the elements of the Terminal Command Language, and a discussion of the system operation. (28 pages)
H20-0329 System/360 Product Structure Retrieval Program	60	H20-0349 Synchronous Transmit-Receive Access Method for OS/360 User's Manual	60	H20-0354 System/360 Remote Access Computing System (RAX) User's Manual
The IBM System/360 Product Structure Retrieval Program is an implementation package used to retrieve product structure records created and maintained by the System/360 Bill of Material Processor Program (360A-ME-06X). The package will contain (1) generalized programs to retrieve product structure records, (2) flexible user report formats, and (3) logic diagrams explaining the retrieval and use of the information in manufacturing applications.		<i>Program Number: 360A-SE-32X</i>		<i>Program Number: 360A-CX-17X</i>
This manual contains a general description of the application, the machine configuration, general systems charts, and a discussion of input/output files. (24 pages)		This publication describes the operator actions when using the Synchronous Transmit-Receive Access Method for DOS/360. Topics include establishing a data line, error messages, and maintenance. (8 pages)		This publication provides the information necessary to use the IBM System/360 Remote Access Computing System (RAX). It contains a description of the system, which provides concurrent access to a System/360 Model 30, 40, or 50, for up to 63 remote 1050 IBM Data Communications Terminals and 2260 Display Station locations. This system provides for the compilation and execution of Basic FORTRAN IV and Basic Assembler Language programs and the maintenance of program and data files in a library structure. (148 pages)
H20-0331 System/360 APT Numerical Control Processor Operator's Manual	60	H20-0350 Synchronous Transmit-Receive Access Method for OS/360 Operator's Manual	60	H20-0355 System/360 Remote Access Computing System (RAX) Operator's Manual
<i>Program Number: 360A-CN-10X</i>		<i>Program Number: 360A-SE-33X</i>		<i>Program Number: 360A-CX-17X</i>
This manual provides suggested processor generation and maintenance techniques, program setup instructions, console operating instructions, halts and error messages, storage map, and restart procedures. (12 pages)		This publication describes the Synchronous Transmit-Receive Access Method for OS/360. The STR Access Method provides macro instructions and routines to support STR transmission under program control. The macro instructions are described for the following functions:		This publication provides the System/360 machine operator with detailed instructions for starting, running, and stopping the Remote Access Computing System (RAX). It includes machine requirements, description of online messages and their meanings, and restart procedures. This manual also includes the procedures required for system generation and library maintenance. (32 pages)
H20-0344 Project Management System/360 User's Manual	60	H20-0352 1400 Autocoder to COBOL Conversion Aid Program—Application Description	60	H20-0367 System/360 Continuous System Modeling Program User's Manual
<i>Program Number: 360A-CP-04X</i>		<i>Program Number: 360A-SE-19X</i>		<i>Program Number: 360A-CX-16X</i>
This manual provides a detailed description of the three component parts of PMS/360: the Network Processor, the Cost Processor, and the Report Processor. It provides in detail the format of input required, the methods of calculation followed, and an explanation of the output generated by each processor. It also defines OS/360 Job Control cards required to run the three processors.		This publication describes the operator actions when using the Synchronous Transmit-Receive Access Method for OS/360. Topics include establishing a data line, error messages, and maintenance. (8 pages)		This is an IBM System/360 program for the simulation of continuous systems. It provides an application-oriented input language that accepts problems expressed in the form of either an analog block diagram or a system of ordinary differential equations. Data input and output are facilitated by application-oriented control statements.
This manual will enable the user to perform critical path analysis as well as PERT and PERT Cost analysis. (165 pages)		H20-0368 System/360 Continuous System Modeling Program Operator's Manual	60	This manual contains a general description of the program, detailed programming information, and a description of the inputs and outputs. (60 pages)
		<i>Program Number: 360A-CX-16X</i>		
		This document provides information about the 1400 Autocoder to COBOL Conversion Aid Program (ACCAP) and its resulting COBOL programs. The information provided should enable the user to evaluate ACCAP for his installation before its use.		

pressed in the form of either an analog block diagram or a system of ordinary differential equations.

This manual contains information and procedures that will enable the user to incorporate the System/360 Continuous System Modeling Program into an Operating System/308 library; to include a procedure in the Operating System/360 procedure library (os/360 SYSL.PROCLIB); and subsequently to execute s/360 CSMP under the control of, and using the services of, os/360. (16 pages)

H20-0369 System/360 Product Structure 60
Retrieval Program Programmer's Manual

Program Number: 360A-ME-07X

The IBM System/360 retrieval package for the Bill of Material Processor Program provides the following types of retrieval:

1. Single-level explosion
2. Indented explosion
3. Summarized explosion
4. Single-level implosion
5. Indented implosion
6. Summarized implosion

This manual includes:

1. A brief discussion of system definition.
2. A checklist of things to be done before customizing retrieval programs.
3. Descriptions of all i/o files.
4. Explanation and operating instructions for the sample problem.
5. Descriptions of all retrieval programs and sub-routines, plus instructions for their modification.
6. Descriptions and logic diagrams for three retrieval phases. (48 pages)

H20-0370 System/360 Product Structure 60
Retrieval Program Operator's Manual

Program Number: 360A-ME-07X

The IBM System/360 Bill of Material Processor Retrieval Programs constitute an implementation package that uses the assembly and where-used information from the processor files previously loaded on disk to produce reports for the user.

This manual for the retrieval programs contains detailed operating information for retrieval program system loading and retrieval job control. (16 pages)

H20-0319 System/360 Data Conversion and 60
Label Processing Subroutines, Version
2—Program Reference Manual

Program Number: 360A-SE-23X

This manual contains a description of a set of sub-routines that may be used in converting data files from current system formats to System/360 formats and vice versa. The subroutines available for processing current system data file formats are listed and described. Also, the use of the subroutines is shown by example. (63 pages)

L22-6871 IBM System/360—2911 Manual 13
Switching Unit Models 1, 2, and 5
Special Systems Feature

This bulletin describes the functions of the 2911 Manual Switching Unit for System/360 signal lines. Details of each available configuration, physical and electrical requirements, and cabling information are included. This bulletin provides an understanding of manual switching units for the IBM System/360 by explaining their function and capability. (15 pages)

L22-6890 IBM 2930 Model 1 Tape 13
Intersystem Connecting Unit

This bulletin describes the operation of the IBM 2930 Model 1 Tape Intersystem Connecting Unit, which is a special systems feature for connecting a 1401, 1410, 1460, or any 7000-series system to a System/360.

The reader's familiarity with *IBM System/360 Principles of Operation*, Form A22-6821 is presumed.

Detailed information concerning interface lines is in the following publications: *IBM System/360 I/O Interface—Channel-to-Control Unit, Original Equipment Manufacturers' Information*, Form A22-6843. *IBM 729 II, IV, V, VI Magnetic Tape Units, Original Equipment Manufacturers' Information*, Form A22-6643. (20 pages)

L22-6901 IBM 2937 Models 1, 2, and 3 13
Multiplier-Summation Processor—Special
Systems Feature—RPQ 880626

This bulletin describes the function of the multiplier summation processor as an input/output device of the IBM System/360. Physical and electrical requirements are given along with illustrations of the formation of final product sums. (16 pages)

L22-6902 IBM System/360 Model 40 13
Sum of Products Instruction—RPQ W12561
Special Systems Feature

This bulletin describes the function of a new instruction, Sum of Products, as an option of System/360 Model 40. Computation of the convolution integral is possible with this single instruction. The instruction is described and timing and overflow considerations are given. (2 pages)

L22-6903 IBM System/360 Model 40 13
Halfword Translate Instruction—RPQ W13462
Special Systems Feature

This bulletin describes the function of a new instruction, Halfword Translate, as an option of System/360 Model 40. The instruction is used in a data move operation. A description of the instruction is given, together with its timing. (2 pages)

L22-6904 IBM System/360 Model 40 13
Table Address Chaining—RPQ W13518
Special Systems Feature

This bulletin describes the function of table address chaining as a System/360 Model 40 i/o data chaining option. A description of the option is given together with restrictions for use of the option. (2 pages)

L22-6915 IBM System/360 Model 44 13
Instruction Trap and Emulate—Special
Systems Feature—RPQ 888086

This manual describes the purpose, function, operating procedures, program and representative instruction timings, and the means by which the Instruction Trap and Emulate feature emulates 27 System/360 instructions that are not part of Model 44's basic instruction set. An emulator program deck and listing are provided with the feature. (24 pages)

R20-1055 IBM System/360 COURSE Selection 90
Guide—Course Description

This publication describes the course objectives and length, the intended audience, the prerequisites and the course code. It lists all materials required by the instructor and the student. Abstracts are included for the educational materials created specifically for the course. Abstract references are provided for the other materials. (2 pages)

R20-9064 IBM System/360 COBOL Coding 90
Course Description

The IBM System/360 COBOL Coding Course Description describes the course, its objectives and length, the intended audience, the prerequisites and the course code. It lists all materials required by the instructor and the students. Abstracts are included for the educational materials created specifically for the course. Also, abstract references are provided for the other materials. (4 pages)

R20-9100 IBM System/360 Programming 90
Language/One Coding
Course Description

This publication describes the course, its objectives and length, the intended audience, the prerequisites and the course code. It lists all materials required by the instructor and the student. Abstracts are included for the educational materials created specifically for the course. Abstract references are provided for the other materials. (4 pages)

R20-9105 IBM System/360 FORTRAN IV 90
Language/One Coding

The IBM System/360 FORTRAN IV Programmed Instruction Course Description describes the course, its objectives and length, the intended audience, the prerequisites and the course code. It lists all materials required by the instructor and the students. Abstracts are included for the educational materials created specifically for the course. Also, abstract references are provided for the other materials. (4 pages)

R20-9106 IBM System/360 Operation 90
Planning—Course Description

This course description describes the course, its objectives and length, the intended audience, the prerequisites and the course code. It lists all materials required by the instructor and the students. Abstracts are included for the educational materials created specifically for the course. Also, abstract references are provided for the other materials. (3 pages)

R20-9107 IBM System/360 Introduction 90
Course Description

Upon successful completion of this course the student is familiar with the integration of equipment and programming systems for System/360. Topics covered are: development of System/360, configurations, data representation and formats, CPU organization, channels, multiprogramming and multiprocessing, programming systems, input/output devices, direct access storage devices, teleprocessing, data file planning, education and publications, and transition to the System/360.

This course replaces *System Features (I-3600)*, Form Z23-4045, and *Random File Concepts (S-1300)*, Form R20-4002. (4 pages)

R20-9113 IBM System/360 Disk/Tape 90
Operating Systems—Course Description

This publication describes the course, its objectives and length, the intended audience, the prerequisites and the course code. It lists all materials required by the instructor and the student. Abstracts are included for the educational materials created specifically for the course. Abstract references are provided for the other materials. (4 pages)

R20-9202 IBM System/360 Synchronous Transmit Received Devices and Concepts—Course Description	90	X20-1717 IBM 2301 Drum Storage	85	X20-1748 DOS/TOS Job Control Language and Operator Communication Reference Data Card	85
This publication describes the course objectives and length, the intended audience, the prerequisites and the course code. It lists all materials required by the instructor and the student. Abstracts are included for the educational materials created specifically for the course. Abstract references are provided for the other materials. (2 pages)		This reference card describes the capacity of the 2301 and the data transmission time requirements for records of various lengths. Formulas and examples supplement the tables. (Folded Card)		This form is an abstract of the job control statement and operator communication sections of: <i>IBM System/360 Disk Operating System, System Control and System Service Programs</i> , Form C24-5038 as amended by N20-5214, and <i>IBM System/360 Tape Operating System System Control and System Service Programs</i> , Form C24-5034. (8 pages)	
X20-1702 Proportional Record Layout Format Forms	80	X20-1718 IBM 2303 Drum Storage Reference Card	85	X20-1749 PL/I Reference Card for System/360 Tape Operating System and Disk Operating System	85
The front side of this form consists of the Proportional Record Layout Form. It is suitable for card, tape, and disk records. Positional markings are 00-99 and 01-100. The back side of the form is the Record Format Form. This form permits record layouts to be prepared without the space limitations of positional markings. Space is also provided for reference data. These forms are general-purpose and may be used for all systems. (25 per pad—11 x 16½)		This reference card describes the capacity of the 2303 and the data transmission time requirements for records of various lengths. Formulas and examples are used to supplement the tables. (Card)		A reference card for PL/I for System/360 Tape Operating System and System/360 Disk Operating System.	
X20-1703 IBM System/360 Reference Data Card	85	X20-1719 IBM System/360 Character Sets	80	X20-8030 General Purpose Card Punching Form	80
The information on this card is a digest of the data contained in the <i>IBM System/360 Principles of Operation</i> , Form A22-6821 and <i>IBM Basic Support Assembler with Input/Output Macros (8K Tape)</i> , Form C24-3355. (Card—5 fold)		This card shows the character sets used by IBM System/360 programming languages, printers, and system typewriters. It also includes the character sets used by some current-system equipment that may be in use during a transition to System/360. (2 pages)		A general purpose form for preparing input data, control cards, program patch cards and other card input to IBM equipment. (25 per pad—8½ x 11)	
X20-1704 IBM 2321 Data Cell Drive	85	X20-1733 IBM Operating System/360 Reference Data, Assembler Language Data Management Macro Instructions	85	X22-6834 IBM System/360 Unit Record I/O Template	80
A capacity and transmission time reference card arranged in a tabular format. Formulas and examples of how to use the card are included. (Folded Card)		This pocket size booklet is a digest of the data management macro instruction <i>os/360</i> . The information presented in this publication is extracted from C28-6647 and N28-2217. (28 pages)		Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (1 sheet)	
X20-1705 IBM 2311 Disk Cell Drive Reference Card	85	X20-1738 System/360 Reference Data Assembler Language Supervisor Macro-Instruction	80	X22-6835 IBM System/360 Hypertape Template	80
A capacity and transmission time reference card arranged in a tabular format. Formulas and examples of how to use the card are included. (Folded Card)		The information in this form is a digest of the data contained in the <i>IBM System/360 Operating System Control Program</i> , Form C28-6541. (4-page pocket booklet)		Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (1 sheet)	
X20-1706 IBM 2302 Disk Storage Drive Reference Card	85	X20-1739 System/360 Reference Data Linkage Editor	80	X22-6837 Magnetic Tape Record Characteristics—IBM 2400 Series Magnetic Tape Units	80
A capacity and transmission time reference card arranged in a tabular format. Formulas and examples of how to use the card are included. (Folded Card)		The information in this form is a digest of the data contained in the <i>IBM System/360 Operating System Linkage Editor</i> . Form C28-6538. (4-page pocket booklet)		This card is presented as an aid in estimating tape processing time and record capacity per reel. (Card)	
X20-1709 IBM System/360 Basic Programming Support—Basic Utilities Reference Card	85	X20-1741 IBM 1287 Optical Reader Document Tracing Guide	80	X22-6840 Hypertape Capacity and Timing	80
This reference card is a digest of form C28-6505. It contains information needed to make use of the Basic Programming Support Basic Utility Programs, including an example of coding and deck setup. (Folded Card)		This card is a forms design guide for assisting the 1287 users in the physical layout of input documents. (Card—8¼ x 9¼)		This card is presented as an aid in estimating tape processing time and record capacity per reel. (Card)	
X20-1710 IBM 2314 Direct Access Storage Facility Capacity and Transmission Time Reference Card	85	X20-1744 PL/I Reference Data	80	X22-6855 Magnetic Tape Template	80
This reference card provides a convenient reference and several informative examples for planning and programming purposes. Tables include timing and capacity with and without keys. (1 page)		Lists keywords and character sets of PL/I. Keywords are given in alphabetical sequence, are related to pages in C28-6571, and their use is illustrated by short examples. Character sets are given in System/360 ascending collating sequence, punched-card codes and System/360 8-bit code are shown, and names, use, and short examples are given and related to pages in C28-6571. (8 pages)		Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (1 sheet)	
X20-1711 IBM System/360 Record Layout Worksheet	80	X20-1746 Operating System/360 Job Control Language Reference Card	85	X22-6856 IBM System/360 Processors Template	80
Padded forms showing double word, word, halfword and byte boundaries. Bytes marked to accommodate packed-decimal digits. Provides for two records of 256 positions each, both in hexadecimal and decimal numbering. (25 per pad—11 x 16½)		This card contains reference tables and examples of usage designed to assist the user in preparing the Job Control Language aids for <i>os/360</i> . The reference card pertains to the Primary Control Program only.		Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (5 sheets)	
		X20-1747 Share Print Chart	80	X22-6857 Communication Equipment Template	80
		Share, Print Chart—6 lines per inch spacing. Installation supply special spacing chart, padded.		Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (1 sheet)	
				X22-6858 Data Storage Template	80
				Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (3 sheets)	
				X22-6859 IBM System/360 Consoles and Terminals Template	80
				Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (2 sheets)	
				X22-6860 Magnetic and Optical Character Readers Template	80
				Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (1 sheet)	

X22-6894 IBM System/360 Processors Models 30 and 40 Template	80	X24-3407 IBM System/360 Model 30 Multiplexor Channel Worksheet	80	X24-5054 System/360 Coding Form DTFCN Entries	80
Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (1 sheet)		This worksheet is used to facilitate evaluation of the channel effects imposed upon IBM System/360 Model 30 when the multiplexor channel is operating in multiplex mode. The evaluation procedure is described in the <i>IBM System/360 Model 30 Channel Characteristics and Functional Evaluation</i> , Form A24-3411. (25 per pad—11 x 16½)		Padded form, 25 per pad.	
X22-6905 IBM System/360 Processor Model 67 Template	90	X24-3448 IBM 1445 Printer Spacing Chart	80	X24-5055 System/360 Coding Form PRMOD Entries	80
Equipment templates on acetate sheets, ¼ inch equals 1 foot scale, for planning machine room layouts. (5 sheets)		This chart is scaled in non-photographic blue and provides 113 printing positions at eight characters per inch for carriage spacing of six lines per inch. Vertical rulings are shown for each inch or every eight characters apart to assist in printing layout. A carriage-control tape facilitates planning for tape punching. Space is available on the top of the form to indicate miscellaneous print line formats. (1 page)		Padded form, 25 per pad.	
X24-3347 IBM System/360 RPG File Description Sheet	80	X24-3477 Compatibility Initialization Deck Coding Sheet	80	X24-5056 System/360 ISMOD Entries	80
The file description specification sheet provides information about the input and output files used by the object program. (25 per pad—8½ x 13)		This form is used to facilitate preparation of the Compatibility Initialization Deck (CIB) when the 1401, 1440, and 1460 Compatibility Feature is used on the IBM System/360 Model 30.		Padded form, 25 per pad.	
X24-3348 IBM System/360 RPG File Extension Sheet	80	X24-3477 Compatibility Initialization Deck Coding Sheet	80	X26-5590 System/360 Report Program Generator Indicator Summary	80
The file extension sheet is used to provide information about table files, chaining files, and record address files. (25 per pad—8½ x 13)		This form shows the codes required for each of the 32 cards used to lead the 1400 auxiliary storage A and B. The contents of the cards required for the initialization routine are also shown. Except for variable data, the forms are pre-printed.		Padded form, 25 per pad.	
X24-3349 IBM System/360 RPG Line Counter Specification Sheet	80	X24-3477 Compatibility Initialization Deck Coding Sheet	80	X27-2950 IBM 2250 Display Layout Sheet	80
This line-counter specification sheet is used if a report that will ultimately be printed is to be stored on some intermediate device, and if the program uses overflow indicators (for automatic skipping). (25 per pad—8½ x 13)		The card fields of the CIB are described in detail in the <i>System/360 Model 30, 1400 Compatibility Feature</i> , Form A24-3255. (1 sheet)		A layout sheet to plan a display and formulate the associated program data. (1 sheet)	
X24-3350 IBM System/360 RPG Input Specification Sheet	80	X24-5045 System/360 Assembler Coding Form DTFSR Entries Tape	80	X28-6383 IBM FORTRAN IV Reference Data	80
The input specification sheet is used to specify the files to be read into the system, identify records contained in the file, and describe the location of the data fields in each record. (25 per pad—8½ x 13)		Padded form, 25 per pad.		FORTRAN IV information is included for IBM System/360 Basic Programming Support System (BPS Card and BPS Tape), IBM System/360 Tape Operating System (TOS), IBM System/360 Disk Operating System (DOS), IBM System/360 Operating System (E, C, and H), IBM System/360 Model 44 Programming System (44PS), IBM System/360 Time Sharing System (TSS), IBM 1130 System (1130), IBM 1800 System (1800), and United States of America Standards Institute (USASI). (8 pages)	
X24-3351 IBM System/360 RPG Calculation Specification Sheet	80	X24-5046 System/360 Coding Form DTFSR Entries Card Read-Punch	80	X28-6506 IBM System/360 Assembler Short Coding Form	80
The calculation specification sheet is used to specify operations and calculations on input data obtained from previous calculations. (25 per pad—8½ x 13)		Padded form, 25 per pad.		This form is designed to assist programmers in coding programs in the IBM System/360 special support basic assembler language, as described in Form C28-6503. (25 per pad—8½ x 11)	
X24-3352 IBM System/360 RPG Output-Format Specification Sheet	80	X24-5047 System/360 Coding Form DTFSR Entries Printer and Print Keyboard	80	X28-6507 IBM System/360 Assembler Long Coding Form	80
This output-format specification sheet is used to specify the location of the data fields in the output records and the kind of output fields to be produced. (25 per pad—8½ x 13)		Padded form, 25 per pad.		This form is designed to assist programmers in coding programs in the IBM System/360 special support basic assembler language, as described in Form C28-6503. (25 per pad—8½ x 14)	
X24-3376 IBM System/360 Model 30 IBM 1052 Key-tabs	80	X24-5048 System/360 Coding Form DTFSR Entries Disk	80	X28-6509 IBM System/360 Assembler Coding Form	80
These key-tabs are fastened on the front of the keys on the IBM 1052 when the Model 30 is being operated in 1400 Compatibility mode. (Plastic Sheet—5½ x 8½)		Padded form, 25 per pad.		This form is designed to assist programmers in coding programs in the IBM System/360 operating system assembler language, as described in Form C28-6514. (25 per pad—8½ x 14)	
X24-3406 IBM System/360 Model 30 IBM 2702 Worksheet	80	X24-5049 System/360 Coding Form DTFDA Entries	80	X28-6812 IBM System/360 Model 44 Programming System Formats for Machine Check Interruption Diagnostics	80
Multiplexor channel multiplex mode loading evaluation for IBM System/360 Model 30 may indicate an apparent overload for the IBM 2702 Transmission Control Unit (when attached to the multiplexor channel). The IBM 2702 Worksheet is then used with an alternate procedure for evaluation of the 2702. This worksheet is designed for use with the alternate procedure for the 2702 described in <i>IBM System/360 Model 30 Channel Characteristics and Functional Evaluation</i> , Form A24-3411. (25 per pad—11 x 16½)		Padded form, 25 per pad.		When a machine-check interruption occurs, the system attempts to produce a diagnostic printout on the console typewriter and, if successful, places the machine in the wait state. This printout assists field engineering personnel in analyzing a malfunction, and it should be saved by the operator for their use.	
		X24-5050 System/360 Coding Form DTFIS Entries	80	Panel 1 provides material introductory to the use of this reference card. Panels 2 and 3 describe the format of the printout. Panel 4 describes its content. Panel 4 may be used in conjunction with the first line of the diagnostic printout to determine the content of remaining lines. Subsequently, Panels 2 and 3 may be used to determine the significances of the various fields and digits of the selected items displayed. (2 pages)	
		Padded form, 25 per pad.			
		X24-5051 System/360 Coding Form DTFSD Entries	80		
		Padded form, 25 per pad.			
		X24-5052 System/360 Coding Form DTFMT Entries	80		
		Padded form, 25 per pad.			
		X24-5053 System/360 Coding Form DTFCD Entries	80		
		Padded form, 25 per pad.			

- Y20-0042 System/360 Data Conversion Utility III, Version 2—System Manual** 60
Program Number: 360A-SE-26X
 This manual provides detailed information to help the user gain a more thorough knowledge of the programming logic employed in the program macros. For each macro, it presents a listing and narrative. (248 pages)
- Y20-0062 System/360 Flowchart System Manual** 60
Program Number: 360A-SE-22X
 The IBM System/360 Flowchart program is a System/360 program designed to produce flowcharts. This documentation aid operates under DOS/360 and is intended to minimize the planning and effort required to produce and maintain documentation.
 It gives the user ability to:
 1. Produce clear, standardized, easily reproduced computer-generated flowcharts.
 2. Keep flowcharts continually up to date.
 3. Standardize flowcharting techniques.
 This publication is used in conjunction with the System/360 Flowchart optional tape, which contains the source language input, the assembly listings, and the program logic flowcharts. The optional tape is available from the IBM Program Information Department at Hawthorne, New York. One 2400-foot reel of nine-track tape is required.
 This publication contains the narrative for the flowcharts, switch and register usage, miscellaneous programming notes, and the internal record formats used by the program.
 The User's Manual and the Operator's Manual are prerequisites to reading and using this publication. (92 pages)
- Y20-0065 Mathematical Programming System/360 Linear Programming System Manual** 60
Program Number: 360-CO-14X
 This manual provides detailed information to help the user understand the implementation of MPS/360. It is designed to be used with the program listings and flowcharts of MPS/360. (502 pages)
- Y20-0067 System/360 Data Conversion Utilities II, Version 2 (Sequential, Direct Access) System Manual** 60
Program Number: 360A-SE-20X
 This manual provides detailed information to help the user gain a more thorough knowledge of the programming logic employed in the program modules, subroutines, and macros.
 The manual presents, for each module and subroutine, flowcharts, flowchart narrative, and switch and register listings. For each macro, a listing and macro narrative are provided. (256 pages)
- Y20-0069 System/360 Attached Support Processor System (ASP)—System Manual** 60
Program Number: 360A-CX-15X
 The Attached Support Processor (ASP) system is a multiprocessor operating system which extends Operating System/360 (OS/360). Designed primarily for the use of the customer with a large scientific system whose workload typically consists of many jobs of short duration, ASP includes features to facilitate the use of the 709X Emulator and OS/360 integrated into the same operational environment.
- An outgrowth of the 704X-709X Direct Couple Operating System (DCS), ASP incorporates the operational characteristics of this system, although it diverges from it in implementation.
 This manual is intended primarily for the use of the system programmer at an installation in conjunction with the program flowcharts available on tape. It contains a detailed description (flowchart narrative) of each of the programs that constitute the ASP system. The material in this manual has been prepared on the assumption that the programmer is thoroughly familiar with the ASP *Application Programmer's Manual*, Form H20-0322; the ASP *System Programmer's Manual*, Form H20-0323; and the ASP *Console Operator's Manual*, Form H20-0321. (127 pages)
- Y20-0070 TEST/360 Programmer's Manual** 60
Program Number: 360A-SE-24R
 Teleprocessing operational programs and systems can now be tested before the customer's terminal network is installed. Since testing schedules of operational programs may have to begin before the equipment is available, TEST/360 can be used as a communications environment simulator. TEST/360 is a general-purpose TP test package which allows the user to test his operational programs and to evaluate the performance of his entire TP system before installation.
 TEST/360, operating in a separate System/360 CPU, is interfaced with the user's teleprocessing system through an IBM 2702 Transmission Control Unit. Thus, the customer's program residing in a separate CPU can operate in accordance with actual operating conditions. Because the user's programs and associated hardware are both integral parts of the simulation process, TEST/360 provides the closest approximation to a true operational environment.
 This manual describes TEST/360 and how it interfaces with the user's teleprocessing system during test. The document also describes the preparation of control cards, the generation of message transactions from the simulated terminals, logical features, interval reports, end-of-job reports, and post-run analysis reports which enable a user to evaluate the performance of his TP system. (133 pages)
- Y20-0075 General Purpose Simulation System/360 System Manual** 60
 This publication contains a description of the internal structure and basic operation of the CPSS/360 program. All eleven modules which make up the CPSS/360 program are discussed in general and, where appropriate, the operation of all routines within a given module is explained in detail.
 In general, the material presented throughout this manual is applicable to both the OS and DOS version of the CPSS/360 program. Specific differences are listed and described in Appendix D.
 The information contained in this manual should give the user a thorough understanding of the structure and operation of the CPSS/360 program so that HELP block routines or other modification may be more easily implemented. (407 pages)
- Y20-0080 System/360 APT Numerical Control Processor System Manual** 60
Program Number: 360A-CN-10X
 This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application. (861 pages)
- Y20-0083 Project Management System/360 Network Processor System Manual** 60
Program Number: 360A-CP-04X
 This manual presents a detailed description of subroutines and internal data formats of PMS/360 Network Processor. In conjunction with the program listings and flowcharts, it provides the user with a complete description of how this processor is implemented. (228 pages)
- Y20-0084 Project Management System/360 Cost Processor System Manual** 60
Program Number: 360A-CP-04X
 This manual presents a detailed description of subroutines and internal data formats of PMS/360 Cost Processor. In conjunction with the program listings and flowcharts, it provides the user with a complete description of how this processor is implemented. (185 pages)
- Y20-0085 Project Management System/360 Report Processor System Manual** 60
Program Number: 360A-CP-04X
 This manual presents a detailed description of subroutines and internal data formats of PMS/360 Report Processor. In conjunction with the program listings and flowcharts, it provides the user with a complete description of how this processor is implemented. (375 pages)
- Y20-0092 System/360 Scientific Subroutine Package, Version 2 System Manual** 60
Program Number: 360A-CM-03X
 This manual provides flowchart information on the logic used in each subroutine of the System/360 Scientific Subroutine Package. All subroutine descriptions and listings are contained in the User's Manual. (208 pages)
- Y20-0096 Synchronous Transmit-Receive Access Method for DOS/360 System Manual** 60
Program Number: 360A-SE-32X
 This publication describes the architecture and logic of the Synchronous Transmit-Receive Access Method for DOS/360. The manual describes the process for generating STR capability into a DOS system, loading the access method, and logic. Included are:
 SYSCEN and STR loading
 Architecture
 Macro Expansions
 Routine Logic
 STR Error Recovery
 Control Block
 Prerequisites are:
 1. A basic knowledge of System/360 machine concepts.
 2. A basic knowledge of DOS/360.
 3. A knowledge of principles of STR transmission.
 4. Understanding of the Synchronous Transmit-Receive Access Method User's Manual. (120 pages)
- Y20-0097 Synchronous Transmit-Receive Access Method for OS/360 System Manual** 60
Program Number: 360A-SE-33X
 This publication describes the architecture and logic of the Synchronous Transmit-Receive Access Method for OS/360. The manual describes the process for gen-

erating sra capability into an os system, loading the access method, and logic. Included are:

- SYSGEN and sra loading Architecture
- Macro Expansions
- Routine Logic
- sra Error Recovery
- Control Block

Prerequisites are:

1. A basic knowledge of System/360 machine concepts.
2. A basic knowledge of os/360.
3. A knowledge of principles of sra transmission.
4. Understanding of the Synchronous Transmit-Receive Access Method User's Manual. (360 pages)

Y20-0099 System/360 Bill of Material Processor—Version 2 System Manual 60

Program Number: 360A-ME-06X

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application.

It contains detailed reference material for the file organization, maintenance, and reorganization program modules. (380 pages)

Y20-0101 System/360 Remote Access Computing System (RAX) System Manual 60

Program Number: 360A-CX-17X

This publication provides the systems programmer with detailed information about the RAX system. It contains flowcharts and descriptions of the routines making up the system. (376 pages)

Y20-0105 1400 Autocoder to COBOL Conversion Aid Program Programmer's Manual 60

Program Number: 360A-SE-19X

This program is designed to aid in conversion to System/360 COBOL for all 1401, 1410, 1440, 1460 and 7010 users whose current applications are written in Autocoder, by (1) reducing the total effort required in program conversion, (2) freeing manpower of much of the routine reprogramming effort, and (3) eliminating many clerical errors associated with reprogramming.

This manual contains a general description of the program, the machine configuration used, and a sample problem. (56 pages)

Y20-0106 1400 Autocoder to COBOL Conversion Aid Program Operator's Manual 60

Program Number: 360A-SE-19X

This program is designed to aid in conversion to System/360 COBOL for all 1401, 1410, 1440, 1460, and 7010 users whose current applications are written predominantly in Autocoder, by (1) reducing the total effort required in program conversion, (2) freeing manpower of much of the routine reprogramming effort, and (3) eliminating many clerical errors associated with reprogramming.

This manual contains the information necessary to run the program. It includes operating instructions, halts and message lists, and storage map. (80 pages)

Y20-0111 System/360 Continuous System Modeling Program System Manual 60

Program Number: 360A-CX-16X

This is an IBM System/360 program for the simulation of continuous systems. It provides an application-oriented input language that accepts problems expressed in the form of either an analog block diagram or a system of ordinary differential equations. Data input and output are facilitated by means of application-oriented control statements.

This manual provides detailed information to help the user gain a thorough knowledge of the program's logic. It contains flowcharts, flowchart narratives, and tables of switches and data used in COMMON. It also includes a section describing the procedures for implementing several program modifications. (226 pages)

Y20-0112 IBM System/360 Product Structure Retrieval Program System Manual 60

Program Number: 360A-ME-07X

This manual provides detailed information to assist the user in gaining a more thorough knowledge of the programming logic employed in the application.

It contains reference material for the program modules included with the retrieval package. (54 pages)

Y21-0001 IBM System/360 Basic Programming Support—FORTRAN IV (16K Card)—Program Logic Manual 25

Program Number: 360P-FO-205

This manual describes the internal design of the IBM Basic Programming Support, FORTRAN IV (16K Card) system. It is directed at technical personnel responsible for analyzing program operations, diagnosing malfunctions, and/or adapting the program for special usage. The contents provide the information required for effective use of the program listing. (156 pages)

Y24-5000 IBM Basic Operating System/360 Assembler (8K Disk)—Program Logic Manual 21

Program Number: 360B-AS-309

This manual provides detailed information on the internal logic of the IBM Basic Operating System/360 Assembler (8K Disk). It is intended for technical personnel responsible for diagnosing the system operation and/or adapting the programming system to a special use. (526 pages)

Y24-5001 IBM Basic Operating System/360 (8K Disk) Sort/Merge—Program Logic Manual 33

Program Number: 360B-SM-308

This publication describes the internal logic of the IBM Basic Operating System/360 (8K Disk) Sort/Merge program. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (390 pages)

Y24-5002 IBM System/360 Basic Operating System—System Control—Program Logic Manual 30

Program Number: 360B-CL-302

This publication describes the internal logic of the IBM System/360 Basic Operating System, System Control

program. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the operation of the program. Therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (499 pages)

Y24-5003 IBM System/360 Basic Operating System—Logical IOCS—Program Logic Manual 30

Program Numbers:

360B-IO-303 (Sections 1 and 2)

360B-IO-304 (Section 3)

360B-IO-305 (Section 4)

This manual describes the internal logic of the IBM System/360 Basic Operating System Logical IOCS program. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (321 pages)

Y24-5004 IBM System/360 Basic Operating System—Autotest (8K Disk)—Program Logic Manual 37

Program Number: 360B-PT-306

This manual provides detailed information on the internal logic of the IBM Basic Operating System/360 Autotest (8K Disk). It is to be used by technical personnel who are responsible for diagnosing the system operation and/or adapting the programming system to special usage. (124 pages)

Y24-5005 IBM System/360 Basic Operating System—Report Program Generator (8K Disk)—Program Logic Manual 28

Program Number: 360B-RG-307

This manual provides detailed information on the internal logic of the IBM System/360 Basic Operating System Disk Report Program Generator. It is intended for technical personnel who are responsible for diagnosing the system operation and/or adapting the programming system to a special usage. (408 pages)

Y24-5006 IBM System/360 Basic Operating System—1070 Process Communication Supervisor—Program Logic Manual 36

Program Number: 360B-SV-032

This publication was prepared by Programming Systems to provide detailed information on the internal logic of the IBM System/360 Basic Operating System—1070 Process Communication Supervisor. It is intended for technical personnel who are responsible for diagnosing the system and/or adapting the programming system to special usage. (117 pages)

Y24-5007 IBM System/360 Basic Programming Support Paper Document Program Logic Manual 20

Program Numbers:

For IBM 1231-N1—360P-IO-060 (Version 2)

For IBM 1418/1428—360P-IO-059 (Version 2)

For IBM 1412/1419—360P-IO-058 (Version 3)

This reference manual provides detailed information on the internal logic of the IBM System/360 Basic Programming Support IOCS (Input/Output Control Pro-

gram). It is intended for technical personnel responsible for diagnosing the system operation and/or adapting the programming system to special usage. (183 pages)

Y24-5008 IBM System/360 Basic Programming Support—Tape Sort/Merge Program Logic Manual 33

Program Numbers:
360P-SM-043, 1-channel
360P-SM-044, 2-channel

This publication describes the internal logic of the IBM System/360 Basic Programming Support Tape Sort/Merge Program. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program Logic information is not necessary for the operation of the program; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (171 pages)

Y24-5009 IBM System/360 Operating System—COBOL-E—Program Logic Manual 24

Program Number: 360S-CO-503

This publication describes the internal logic of the IBM System/360 Operating System COBOL-E processor. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the processor; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. It is designed to be used as a supplement to the program listing.

Effective use of this manual requires an understanding of IBM System/360 operation and of IBM System/360 Operating System data management linkage editing, service programs, and COBOL language specifications. Reference publications for this information are listed in the Preface of this manual. (280 pages)

Y24-5010 IBM System/360 Basic Programming Support—Basic Tape System (System Control and IOCS) Program Logic Manual 30

Program Number: 360P-40-046

This manual was prepared by Programming Systems to provide detailed information on the internal logic of the IOCS/System Control portion of the IBM System/360 Basic Programming Support; Basic Tape System-8K. This manual discusses the 8K Tape Control System (System Tape), 8K Independent Control System, and Logical and Physical IOCS supporting these systems. It is intended for technical personnel who are responsible for diagnosing the system operation and/or adapting the programming system to special usage. (325 pages)

Y24-5011 IBM System/360 Basic Programming Support—Tape Autotest Program Logic Manual 37

Program Number: 360P-PT-045

This manual provides detailed information on the internal logic of the IBM System/360 Basic Programming Support Autotest (8K Tape). It is for technical personnel who are responsible for diagnosing the system operation and/or adapting the programming system to special usage. (105 pages)

Y24-5012 IBM System/360 Basic Programming Support—Tape Assembler Program Logic Manual 21

Program Number: 360-AS-047

This manual provides detailed information on the internal logic of the IBM System/360 Basic Programming Support Assembler (8K Tape). It is intended for technical personnel responsible for diagnosing the system operation and/or adapting the programming system to a special use. (451 pages)

Y24-5013 IBM System/360 Basic Programming Support—Universal Character Set Utility—Program Logic Manual 32

This reference publication provides detailed information on the internal logic of the IBM System/360 BPS Universal Character Set Utility program.

The publication is intended to assist technical personnel responsible for system operation by presenting the program operation. It can also be used to adapt the program to special usage. (23 pages)

Y24-5014 IBM System/360 Basic Programming Support—Basic Assembler—Program Logic Manual 21

This publication provides detailed information on the internal logic of the IBM System/360 Basic Programming Support Basic Assembler. It is intended for technical personnel who are responsible for analyzing program operation, diagnosing malfunctions, and/or adapting the program to special usage. (107 pages)

Y24-5015 IBM System/360 Basic Programming Support—Basic Utilities Program Logic Manual 32

This manual provides detailed information on the internal logic of the IBM System/360 Basic Programming Support Basic Utilities programs. These programs are:

- Absolute Loader
- Relocating Loader
- Single-Phase Dump Program
- Two-Phase Dump Program
- I/O Support Package

This publication is intended for technical personnel who are responsible for analyzing program operations, diagnosing malfunctions, and/or adapting the programs to special usage. (131 pages)

Y24-5016 IBM System/360 Tape Operating System—Sort/Merge—Program Logic Manual 33

Program Number: 360M-SM-400

This publication describes the internal logic of the IBM System/360 Tape Operating System Sort/Merge program. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (218 pages)

Y24-5017 IBM System/360 Disk Operating System—System Control—Program Logic Manual 36

Program Number: 360N-CL-453, Version 2

This publication describes the internal logic of the IBM System/360 Disk Operating System, System Control Program. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the System Control Program; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. It is designed to be used as a supplement to the program listing.

Effective use of this manual requires an understanding of IBM System/360 operation and of IBM System/360 Disk Operating System control and service programs, macro instructions, and operating procedures. Reference publications for this information are listed in the Preface of this manual. (756 pages)

Y24-5018 IBM System/360 Tape Operating System—Logical IOCS Program Logic Manual 32

Program Number: 360M-IO-404, Version 2

This publication describes the internal logic of the IBM System/360 Tape Operating System Logical IOCS, Version 2. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution is limited to those with maintenance and alteration requirements.

Effective use of this publication requires an understanding of the following IBM System/360 publications:

- IBM System/360 Principles of Operation, Form A22-6821
- IBM System/360 Disk and Tape Operating Systems, Assembler Specifications, Form C24-3414

Other related publications are listed in the Preface of this publication. (240 pages)

Y24-5019 IBM System/360 Tape Operating System—Utility Programs—Program Logic Manual 32

Program Number: 360M-UT-403

This publication describes the internal logic of the IBM System/360 Tape Operating System Utility Programs. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the operation of the program. Therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (165 pages)

Y24-5020 IBM System/360 Disk Operating System—Logical IOCS—Program Logic Manual 30

Program Numbers:

CDMOD*	360N-IO-453
DAMOD	360N-IO-454
ISMOD	360N-IO-457
MTMOD	360N-IO-456
PRMOD*	360N-IO-453
PTMOD	360N-IO-458
SDMOD	360N-IO-455

*CDMOD and PRMOD are included in the System Control Program. The Control Program Number is 360-CL-453.

This manual was prepared by Programming Systems to provide detailed information on the internal logic of the Logical IOCS portion of the IBM System/360 Disk Operating System. It is intended for technical personnel who are responsible for diagnosing the system operation and/or adapting the programming system to special usage. (369 pages)

- Y24-5021 IBM System/360 Disk Operating System—Sort/Merge—Program Logic Manual** 33
Program Number: 360N-SM-450
 This publication describes the internal logic of the IBM System/360 Disk Operating System Sort/Merge program. It is intended for use by persons involved in program maintenance, and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (380 pages)
- Y24-5022 IBM System/360 Tape Operating System—System Control—Program Logic Manual** 36
Program Number: 360M-CL-405, Version 2
 This publication describes the internal logic of the IBM System/360 Tape Operating System system control and system service programs. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the system; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. It is designed to be used as a supplement to the program listings.
 Effective use of this manual requires an understanding of IBM System/360 operation and of IBM System/360 Tape Operating System assembler language, macro-instructions, and system control and maintenance program operation. Reference publications for this information are listed in the Preface of this manual. (624 pages)
- Y24-5023 IBM System/360 Disk Operating System—Utilities—Program Logic Manual** 32
Program Numbers:
 360N-UT-461
 360N-UT-462
 360N-UT-463
 This publication describes the internal logic of the IBM System/360 Disk Operating System Utility programs. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (222 pages)
- Y24-5025 IBM System/360 Disk and Tape Operating Systems—COBOL-D with DASD Macros—Program Logic Manual** 24
Program Numbers:
 360M-CB-402
 360M-CB-452
 This publication describes the internal logic of the IBM System/360 Disk and Tape Operating Systems COBOL-D processor. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the processor; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. It is designed to be used as a supplement to the program listing. (131 pages)
- Y24-5026 IBM System/360 Tape Operating System—Autotest—Program Logic Manual** 37
Program Number: 360M-PT-407
 This publication describes the internal logic of the IBM System/360 Tape Operating System Autotest program. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the operation of the program. Therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (225 pages)
- Y24-5027 IBM System/360 Disk Operating System—Autotest—Program Logic Manual** 37
Program Number: 360N-PT-459
 This publication describes the internal logic of the IBM System/360 Disk Operating System Autotest program. It is intended for use by persons involved in program maintenance and system programmers who are altering the program design. Program logic information is not necessary for the operation of the program. Therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (429 pages)
- Y24-5028 IBM System/360 Basic Programming Support—Report Program Generator (8K Tape)—Program Logic Manual** 28
Program Number: 360M-RG-201
 This manual provides detailed information on the internal logic of the IBM System/360 Basic Programming Support Tape Report Program Generator. It is intended for technical personnel who are responsible for diagnosing the system operation and/or adapting the programming system to a special usage. (348 pages)
- Y24-5032 IBM System/360 Disk and Tape Operating Systems—FORTRAN IV—Program Logic Manual** 25
Program Numbers:
 360M-FO-409
 360N-FO-451
 This publication describes the internal logic of the IBM System/360 Disk and Tape Operating Systems FORTRAN IV compiler. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the compiler; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (151 pages)
- Y24-5045 IBM System/360 Disk and Tape Operating Systems—Utility Macros Program Logic Manual** 32
Program Numbers:
 360N-UT-471
 360N-UT-411
 This publication describes the internal logic of the IBM System/360 Disk and Tape Operating Systems, Utility Macros. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution is limited to those with maintenance and alteration requirements.
- These utility macros support file-to-file operations among the following devices:
 IBM 2501 Card Reader
 IBM 1442 Card Read Punch
 IBM 2520 Card Read Punch
 IBM 2540 Card Read Punch
 IBM 1052 Printer-Keyboard
 IBM 1403 Printer
 IBM 1404 Printer (continuous forms only)
 IBM 1443 Printer
 IBM 1445 Printer
 IBM 2311 Disk Storage Drive
 IBM 2400 Series Tape Drive. For Tape input and/or output, the utility macros require the optional supervisor "set mode" facility.
 Effective use of this publication requires an understanding of IBM System/360 operating principles, and of the IBM System/360 Disk and Tape Operating Systems. Reference publications for this information are listed in the Preface of this publication. (83 pages)
- Y26-3598 IBM System/360 Operating System Assembler (32K)—Program Logic Manual** 21
 This publication describes the internal logic of the 32K Assembler for IBM System/360 Operating System. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program Logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (123 pages)
- Y26-3613 IBM System/360 RPG Translator Program Logic Manual** 28
 This publication provides detailed information on the internal logic of the IBM System/360 RPG Translator. The contents are intended for technical personnel who are responsible for analyzing program operation, diagnosing malfunctions, and/or adapting the program to special usage. (140 pages)
- Y26-3642 IBM System/360 Disk and Tape Operating Systems—Assembler Program Logic Manual** 21
Program Numbers:
 360N-AS-465
 360N-AS-466
 360N-AS-467
 This publication describes the internal logic of the Assembler for the IBM System/360 Disk and Tape Operating Systems. It is intended for use by persons involved in program maintenance, and by systems programmers who are altering the program design. (137 pages)
- Y26-3700 IBM System/360 Operating System Assembler (64K)—Program Logic Manual** 21
Program Number: 360S-AS-037
 This publication describes the internal logic of the 64K Assembler for the IBM System/360 Operating System. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Since program logic information is not necessary for the use and operation of the Assembler, distribution of this publication is limited to these people. (116 pages)

- Y26-3701 IBM System/360 Disk and Tape Operating Systems—Report Program Generator—Program Logic Manual** 28
- Program Numbers:*
360N-RG-460 (Disk)
360M-RG-408 (Tape)
- This publication describes the internal logic of the Report Program Generator for System/360 Disk and Tape Operating Systems. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (130 pages)
- Y26-3704 IBM System/360 Operating System Report Program Generator—Program Logic Manual** 28
- Program Number:* 360S-RG-038
- This publication describes the internal logic of the Report Program Generator for System/360 Operating System. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. (129 pages)
- Y27-7102 IBM System/360 Conversion Aids: FORTRAN II Language Conversion Program for the IBM 1401 Program Logic Manual** 25
- Program Number:* 1401-FO-702
- This publication describes the internal logic of the FORTRAN II Language Conversion Program for the IBM 1401, which is used as a transition aid to IBM System/360. It is intended for use by persons involved in program maintenance and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (89 pages)
- Y27-7103 IBM System/360 Conversion Aids: The 1401/1460 Emulator Program for IBM System/360 Model 40—Program Logic Manual** 35
- Program Number:* 360C-EU-074
- This publication describes the internal logic of the IBM 1401/1460 Emulator Program; the relationship of the program logic to that of the IBM 1401/1460 Compatibility Feature (#4457) is discussed. Written as a guide to and for use with the program listing, the publication is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those persons with the aforementioned requirements. (51 pages)
- Y27-7108 IBM System/360 Transition Aids: COBOL Language Conversion Program for the IBM 1401—Program Logic Manual** 24
- Program Number:* 1401-CB-701
- This publication describes the internal logic of the COBOL Language Conversion Program for the IBM 1401, which is used as a transition aid to IBM System/360. It is intended for use by persons involved in program maintenance and system programmers who are altering
- the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (88 pages)
- Y27-7110 IBM System/360 Operating System Graphics Problem Oriented Routines Program Logic Manual** 30
- Program Number:* 360S-IO-523
- This publication describes the internal logic of problem oriented routines associated with the graphic programming services of System/360 Operating System and intended for use with the IBM 2250 Display Unit.
- This program logic manual is intended for use with appropriate program listings. Its primary purpose is to serve as a guide to the program listings with which it is used.
- It is provided for persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (39 pages)
- Y27-7111 IBM System/360 Conversion Aids: The 7074 Emulator Program for IBM System/360 Models 50 and 65—Program Logic Manual** 35
- Program Number:* 360C-EU-725
- This publication describes the internal logic of the IBM 7074 Emulator Program in conjunction with the IBM 7074 Compatibility Feature and is primarily a guide to the program listing. It is intended for use with the program listing by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of the document is limited to those persons with the aforementioned requirements. (74 pages)
- Y27-7112 IBM System/360 Conversion Aids: The 7080 Emulator Program for IBM System/360 Model 65—Program Logic Manual** 35
- Program Number:* 360C-EU-727
- This publication describes the internal logic of the IBM 7080 Emulator Program; the publication is intended to be used with the program assembly listing and is primarily a guide to that listing. The Program Logic Manual is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of the document is limited to those with the aforementioned requirements. (73 pages)
- Y27-7113 IBM System/360 Operating System Graphics Access Method—Program Logic Manual** 30
- Program Number:* 360S-IO-523
- This publication describes the operation of the Graphics Access Method (GAM) for the IBM 2250 Display Unit Models 1, 2, and 3, the IBM 2260 Display Station (Local Attachment); and the IBM 2280/82 Film Units. The Graphics Access Method functions in both express and basic environments, and both types of routines are described herein.
- This program logic manual is intended for use with appropriate program listings. Its primary purpose is to serve as a guide to the program listings with which it is to be used. It is provided for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (92 pages)
- Y27-7115 IBM System/360 Conversion Aids: The 1410/7010 Simulator for IBM System/360—Program Logic Manual** 35
- Program Number:* 360C-SI-754
- This document describes the internal logic of the IBM System/360 Simulator for the IBM 1410/7010.
- Program logic manuals are intended for use by IBM systems engineers involved in program maintenance, and by systems programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (98 pages)
- Y27-7116 IBM System/360 Conversion Aids: The 1620 Simulator for IBM System/360 Program Logic Manual** 35
- Program Number:* 360C-SI-752
- This document describes the internal logic of the IBM System/360 Simulator for the IBM 1620 Model 1 and Model 2.
- Program Logic Manuals are intended for use by IBM systems engineers involved in program maintenance, and by systems programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (85 pages)
- Y27-7117 IBM System/360 Conversion Aids: The 7070/7074 Simulator for IBM System/360—Program Logic Manual** 35
- Program Number:* 360C-SI-753
- This document describes the internal logic of the IBM System/360 Simulator for the IBM 7070/7074.
- Program logic manuals are intended for use by IBM systems engineers involved in program maintenance, and by systems programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (103 pages)
- Y27-7118 IBM System/360 Conversion Aids: The 7080 Simulator for IBM System/360 Program Logic Manual** 35
- Program Number:* 360C-SI-751
- This document describes the internal logic of the IBM System/360 Simulator for the IBM 7080.
- Program logic manuals are intended for use by IBM systems engineers involved in program maintenance, and by systems programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (102 pages)

- Y27-7119 IBM System/360 Conversion Aids: 35**
The 7090/7094 Simulator for IBM
System/360—Program Logic Manual
- Program Number: 360C-SI-750*
- This document describes the internal logic of the IBM System/360 Simulator for the IBM 709/7090/7094/7094 II.
- Program Logic Manuals are intended for use by IBM systems engineers involved in program maintenance, and by systems programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (95 pages)
- Y27-7126 IBM System/360 Model 30—1620 35**
Emulator Program—Program Logic
Manual
- Program Number: 360C-EU-731*
- This publication describes the internal logic of the 1620 Emulator Program. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (79 pages)
- Y27-7128 IBM System/360 Operating System 30**
Control Program with Option 2
Program Logic Manual
- Program Numbers:*
360S-CI-505
360S-DM-508
- Multiprogramming with a fixed number of tasks is Option 2 of the control program for the IBM System/360 Operating System. This publication describes the internal logic of the control program to the extent that it is modified for Option 2. These modifications affect the job management, task management, and data management routines of the control program.
- The Program Logic Manual is to be used with the program assembly listings and is primarily a guide to those listings. It is intended for personnel involved in program maintenance and system programmers who are altering the system design. Program logic information is not necessary for the use and operation of the control program; therefore, distribution of this document is limited to those with the aforementioned requirements. (85 pages)
- Y27-7136 IBM System/360 Disk Operating 32**
System—Vocabulary File Utility Program
for the IBM 7772 Audio Response Unit
- Program Number: 360N-UT-472*
- This manual provides detailed information on the internal logic of the Vocabulary File Utility Program.
- This manual is intended for use by IBM systems engineers involved in program maintenance and by systems programmers involved in altering the program design. (56 pages)
- Y28-6382 IBM System/360 Operating System 24**
COBOL (F)—Program Logic Manual
- Program Numbers:*
360S-CB-524
360S-LM-525
- This publication describes the internal design of the IBM System/360 Operating System COBOL (F) Compiler program. Program logic manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design for installations that require a special purpose COBOL compiler. (187 pages)
- Y28-6564 IBM System/360 Model 40—1410/ 35**
7010 Emulator Program—Program Logic
Manual
- Program Number: 360C-EU-728*
- This publication describes the internal logic of the 1410/7010 Emulator Program used with Compatibility Feature #4478 to execute 1410/7010 programs on a System/360 Model 40. Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (79 pages)
- Y28-6566 IBM System/360 Model 65 35**
709/7090/7094/7094 II Emulator
Program—Program Logic Manual
- Program Number: 360C-EU-729*
- This publication describes the internal logic of the 709/7090/7094/7094 II Emulator Program used with Compatibility Feature #7119 to execute 709/7090/7094/7094 II programs on a System/360 Model 65.
- Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (128 pages)
- Y28-6569 IBM System/360 Model 50 35**
1410/7010 Emulator Program—Program
Logic Manual
- Program Number: 360C-EU-726*
- This publication describes the internal logic of the 1410/7010 Emulator Program used with Compatibility Feature #4478 to execute 1410/7010 programs on a System/360 Model 50. Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (78 pages)
- Y28-6597 IBM System/360 Operating 33**
System—Sort/Merge—Program Logic
Manual
- Program Number: 360S-SM-023*
- This publication describes the internal logic of the IBM System/360 Operating System sort/merge program. Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities.
- This version of the sort/merge program is designed to:
1. Sort a data set using either the IBM 2400-Series Magnetic Tape Unit (7- or 9-track), or the IBM 2311 Disk Storage Drive, or the IBM 2301 Drum Storage as intermediate storage. (The initial input and final output functions of the sort/merge program are accomplished by the data management QSAM routine.)
 2. Merge up to 16 previously sorted data sets. (88 pages)
- Y28-6599 IBM System/360 Conversion Aids: 35**
The 7040/7044 Emulator Program for
IBM System/360 Model 65—Program
Logic Manual
- Program Number: 360C-EU-733*
- This publication describes the internal logic of the 7040/7044 Emulator Program used with the Compatibility Feature (7119) to execute 7040/7044 programs on an IBM System/360 Model 65.
- Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (139 pages)
- Y28-6601 IBM System/360 Operating System 25**
FORTRAN IV (E)—Program Logic Manual
- Program Number: 360S-FO-092*
- This publication describes the internal design of the IBM System/360 Operating System FORTRAN IV (E) compiler program. Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (158 pages)
- Y28-6604 IBM System/360 Operating System 30**
Sequential Access Methods—Program
Logic Manual
- Program Number: 360S-DM-508*
- This publication describes the internal logic of the routines of the queued sequential access method, the basic sequential access method, and the basic partitioned access method of IBM System/360 Operating System.
- Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the

program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (57 pages)

Y28-6605 IBM System/360 Operating System 36
Introduction to Control Program Logic
Program Logic Manual

Program Numbers:
 360S-CI-505
 360S-DM-508

This publication discusses the components of the primary control program of IBM System/360 Operating System and indicates the program logic manuals that describe these components.

Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (32 pages)

Y28-6606 IBM System/360 Operating System 30
Catalog Management—Program Logic
Manual

Program Number: 360S-DM-508

This manual provides detailed information on catalog management routines. These routines record identification of volumes used by data sets by maintaining information in logical records called indexes. The functions and structures of the routines are described, as are their relationships to other portions of IBM System/360 Operating System. This manual also describes the structure of catalog data sets that contain the indexes processed by catalog management routines. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (20 pages)

Y28-6607 IBM System/360 Operating System 30
Direct Access Device Space Management
Program Logic Manual

Program Number: 360S-DM-508

This manual provides detailed information on direct-access device space management (DADSM) routines. These routines control the use of external direct-access storage by maintaining the information in data set control blocks. The functions and structures of the routines are described, as are their relationships to other portions of IBM System/360 Operating System. This manual also describes the structure of volume tables of contents which are processed by DADSM routines.

This program logic manual is directed to the IBM customer engineer who is responsible for program maintenance. It can be used to locate specific areas of the program, and it enables the reader to relate these areas to the corresponding program listings. Because program logic information is not necessary for program operation and use, distribution of this manual is restricted to persons with program-maintenance responsibilities. (36 pages)

Y28-6609 IBM System/360 Operating System 30
Input/Output Support (OPEN/CLOSE/EOV)
Program Logic Manual

Program Number: 360S-DM-508

This publication describes the internal logic of IBM System/360 Operating System input/output support. The discussion includes the relation of I/O support routines to other portions of the control program. Detailed descriptions of the open, close, and EOVS routines provide the basis for the discussions of the other I/O support routines OPENJ, RDPFCB, Tclose, and FEOV.

Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (44 pages)

Y28-6610 IBM System/360 Operating System 31
Linkage Editor—Program Logic Manual

Program Number: S360-ED-510 (Level E)

This publication describes the internal logic of the 15K, 18K, and 44K versions of the level E linkage editor. The linkage editor combines and edits modules to produce a single load module that can be loaded into main storage by the control program. The linkage editor operates as a processing program rather than as a part of the control program.

This program logic manual is directed to the IBM customer engineer who is responsible for program maintenance. It can be used to locate specific areas of the program, and it enables the reader to relate these areas to the corresponding program listings. Because program logic information is not necessary for program operation and use, distribution of this manual is restricted to persons with program-maintenance responsibilities. (148 pages)

Y28-6611 IBM System/360 Operating System 37
TESTTRAN—Program Logic Manual

Program Number: 360S-PT-516

This publication describes the logic of the test translator (TESTTRAN) portion of IBM System/360 Operating System. TESTTRAN is divided into three parts: the TESTTRAN macro-instructions, the TESTTRAN interpreter, and the TESTTRAN editor. The operation of each of these parts is discussed in detail.

Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (126 pages)

Y28-6612 IBM System/360 Operating System 36
Fixed-Task Supervisor—Program Logic
Manual

Program Number: 360S-CI-505

This publication describes the fixed-task supervisor, which performs task management as a major part of the primary control program of IBM System/360 Operating System. In addition, this manual describes the initial program loader (IPL) and the nucleus initialization program (NIP).

Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (77 pages)

Y28-6613 IBM System/360 Operating System 36
Job Management—Program Logic
Manual

Program Number: 360S-CI-505

This publication describes the internal logic within the job management portion of the IBM System/360 Operating System Primary Control Program. Job management prepares jobs for execution, and directs the disposition of data sets created during job execution. It also handles all communication between the operator and the primary control program. Included in the publication are descriptions of tables and work areas used by the job management routines and a directory of names and purposes of control sections, assembly modules, and load modules.

This publication is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to persons with program maintenance or modification responsibilities.

The information contained in this publication applies only to the primary control program. (128 pages)

Y28-6614 IBM System/360 Operating System 32
Utilities—Program Logic Manual

Program Number: 360S-UT-506

This publication describes the internal logic of the utility programs provided for IBM System/360 Operating System. They include system, data set, and independent utility programs. Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (83 pages)

Y28-6616 IBM System/360 Operating System 30
Input/Output Supervisor—Program
Logic Manual

Program Number: 360S-CI-505

This publication describes the operation of the I/O supervisor within the IBM System/360 Operating System control program. The I/O supervisor's components, the EXCP supervisor and the I/O interruption supervisor, are discussed in detail to show the internal structure and logic involved in the control of I/O devices and channels.

Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (96 pages)

Y28-6617 IBM System/360 Operating System 30
Basic Direct Access Method—Program
Logic Manual

Program Number: 360S-DM-509

This publication describes the internal logic of the IBM System/360 Operating System basic direct access method (BDAM). The functions and structures of the routines are described, as are their relationships to other portions of the operating system.

The manual is intended for use by IBM customer engineers involved in program maintenance, and system programmers who are altering the program design. It can be used to locate specific areas of the program, and it enables the reader to relate these areas to the corresponding program listings. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (72 pages)

Y28-6618 IBM System/360 Operating System 30
Indexed Sequential Access Methods
Program Logic Manual

Program Number: 360S-IO-526

This publication describes the program logic of the two indexed sequential access methods: the queued indexed sequential access method (QISAM) and the basic indexed sequential access method (BISAM). It also discusses the relationship of indexed sequential access method routines to other parts of the control program.

Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (88 pages)

Y28-6620 IBM System/360 Basic 25
Programming Support—FORTRAN IV
Program Logic Manual

Program Number: 360P-FO-031

This manual provides information on the internal logic of the IBM System/360 Basic Programming Support FORTRAN system. The contents are intended for technical personnel who are responsible for analyzing system operations, diagnosing them, and/or adapting them for special usage. (499 pages)

Y28-6638 IBM System/360 Operating System 25
FORTRAN IV (G) Compiler—Program
Logic Manual

Program Number: 360S-FO-520

This publication describes the internal logic of the FORTRAN IV (G) compiler.

Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities.

The FORTRAN IV (G) compiler is a processing program of the IBM System/360 Operating System. It translates one or more source modules written in the FORTRAN language into an object module that can be processed into an executable load module by the Linkage Editor. (248 pages)

Y28-6642 IBM System/360 Operating System 25
FORTRAN IV (H) Compiler—Program
Logic Manual

Program Number: 360S-FO-500

This publication describes the internal design of the IBM System/360 Operating System FORTRAN IV (H) compiler program. Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (232 pages)

Y28-6658 IBM System/360 Operating System 36
MVT Control Program Logic Summary

Program Numbers:

360S-CI-535

360S-DM-508

This publication introduces the internal logic of the MVT control program of System/360 Operating System. It contains general descriptions of the operating environment of the control program, the initial program loading procedure, and the job management, task management, and data management functions. Detailed descriptions of the implementation of these functions are in the program logic manuals listed in Appendix B.

The MVT configuration of the control program is designed for use with System/360 Models 40, 50, 65, and 75 having 262,144 (256K) bytes or more main storage.

Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities. (44 pages)

Y28-6659 IBM System/360 Operating System 36
MVT Supervisor—Program Logic
Manual

Program Number: 360S-CI-535

This publication describes the internal logic of the MVT supervisor. The MVT supervisor is one part of the control program of the IBM System/360 Operating System. The supervisor controls the basic computing system and programming resources needed to perform several data processing tasks concurrently. Specifically, it was designed to:

1. Handle interruptions.
2. Supervise tasks.
3. Control programs in main storage.
4. Control main storage itself.
5. Supervise the timer.
6. Supervise console communications and the system log.
7. Supervise exiting procedures.
8. Supervise termination procedures.

Program Logic Manuals are intended for use by IBM customer engineers involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities.

The information in this publication applies only to systems capable of multiprogramming with a variable number of tasks (MVT). It reflects the status of the system at Release 12. (308 pages)

Y28-6660 IBM System/360 Operating System 36
MVT Job Management—Program
Logic Manual

Program Number: 360S-CI-535

This publication describes the internal logic of the job management routines for the MVT control program of the IBM System/360 Operating System. Included are discussions of input stream processing, work queue management, job initiation and termination, I/O device allocation, system output processing, and the scheduling and execution of operator commands.

This program logic manual is directed to the IBM customer engineer who is responsible for program maintenance. It can be used to locate specific areas of the program, and it enables the reader to relate these areas to the corresponding program listings. Because program logic information is not necessary for program operation and use, distribution of this manual is restricted to persons with program-maintenance responsibilities. (188 pages)

Y28-6661 IBM System/360 Operating System 36
Initial Program Loader and Nucleus
Initialization Program—Program Logic
Manual

Program Number: 360S-CI-535

This publication describes the internal logic of the Initial Program Loader (IPL) program and of the Nucleus Initialization Program (NIP). The Initial Program Loader prepares main storage to receive the nucleus and then loads the nucleus. The Nucleus Initialization Program initializes the resident part of the control program and prepares main storage for control program operation.

This program logic manual is directed to the IBM customer engineer who is responsible for program maintenance. It can be used to locate specific areas of the program and it enables the reader to relate these areas to the corresponding program listings. Because program logic information is not necessary for program operation and use, distribution of this manual is restricted to persons with program-maintenance responsibilities.

The information in this publication applies only to systems capable of multiprogramming with a variable number of tasks (MVT). (32 pages)

Y28-6800 IBM System/360 Operating System 29
PL/I (F) Compiler—Program Logic
Manual

Program Number: 360S-NL-511

This manual describes the internal design of the IBM System/360 Operating System PL/I (F) Compiler. It is aimed at personnel responsible for analyzing program operations, diagnosing malfunctions, and changing the program format for special or national language usage. The information provides a guide for effective use of the program listings. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those persons with the aforementioned requirements. (238 pages)

Y28-6801 IBM System/360 Operating System 29
PL/I Subroutine Library—Program Logic
Manual

Program Number: 360S-LM-512

This publication describes the internal specifications of the PL/I Subroutine Library as a system component of IBM Operating System/360. The relationships between the code produced by the PL/I (F) compiler, the PL/I

Library modules and the control program are described, and summaries of the properties of individual modules are provided. This information is intended for use by those involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those described above. (117 pages)

Y28-6811 IBM System/360 Model 44 21
Programming System Assembler
Program Logic Manual

Program Number: 360F-AS-616

This publication describes the internal logic of the Model 44 Programming System Assembler.

It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (139 pages)

Y28-6812 IBM System/360 Model 44 36
Programming System Supervisor and
Job Control—Program Logic Manual

Program Numbers:

360F-IO-613
360F-CL-614

This publication describes the internal logic of the control programs (IPL loader, supervisor, job control) that are included in the Model 44 Programming System. It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, distribution is limited to those with maintenance and alteration requirements. (228 pages)

Y28-6813 IBM System/360 Model 44 31
Programming System Linkage Editor
Program Logic Manual

Program Number: 360F-ED-615

This publication describes the internal logic of the linkage editor for IBM System/360 Model 44 Programming System. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution is limited to those with the aforementioned requirements.

The linkage editor combines and edits modules to produce a single load phase that can be loaded into main storage by the control program. The linkage editor operates as a processing program rather than as a part of the control program. (131 pages)

Y28-6814 IBM System/360 Model 44 32
Programming System Utilities and
Stand-alone Programs—Program
Logic Manual

Program Numbers:

360F-UT-607
360F-UT-608

360F-UT-609
360F-UT-610
360F-UT-611
360F-UT-612
360F-UT-617

This publication describes the internal logic of the utility programs that are included in the Model 44 Programming System and of the stand-alone programs that are supplied to the users of that system. It is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (122 pages)

Y28-6815—IBM System/360 Model 44 25
Programming System FORTRAN IV
Compiler—Program Logic Manual

Program Number: 360F-FO-618

This publication describes the internal logic of the FORTRAN IV compiler. It is intended for use by persons involved in program maintenance, and by system programmers involved in altering the program design. Program logic information is not necessary for program operation and use; therefore, distribution of this manual is limited to persons with program maintenance or modification responsibilities.

The FORTRAN IV compiler is a processing program of the IBM System/360 Model 44 Programming System. It translates a source module written in the FORTRAN IV language into an object module that can be processed into an executable load module by the Model 44 linkage editor. (231 pages)

Y28-7106 IBM System/360 Operating System 32
Update Analysis Program—Program
Logic Manual

This publication describes the internal logic of the Update Analysis Program, a component of the IBM System/360 Operating System. The publication is intended for use by persons involved in program maintenance, and system programmers who are altering the program design. Program logic information is not necessary for use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (24 pages)

Y30-2001 IBM System/360 Operating System 30
Basic Telecommunications Access
Method—Program Logic Manual

Program Number: 360OS-CQ-513

This publication describes the internal logic of the Basic Telecommunications Access Method (BTAM). It is intended for use by persons involved in program maintenance and by system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with maintenance and alteration requirements. (69 pages)

Y30-2002 IBM System/360 Operating System 30
Queued Telecommunications Access Method
Program Logic Manual

Program Number: 360S-CQ-519

This Program Logic Manual describes the internal logic of the Queued Telecommunications Access

Method (QTAM) under Option 2 of the IBM System/360 Operating System. This publication is intended for use by personnel involved in program maintenance and by system programmers who are altering the system design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to persons with program maintenance or modification responsibilities. (188 pages)

Y30-5001 IBM System/360 Disk Operating 30
System—Basic Telecommunications Access
Method—Program Logic Manual

Program Number: 360N-CO-469

This publication describes the internal logic of the Disk Operating System's Basic Telecommunications Access Method (DOS/BTAM). It is intended for use by persons involved in program maintenance and for system programmers who are altering the program design. Program logic information is not necessary for the use and operation of the program; therefore, distribution of this publication is limited to those with the aforementioned requirements. (127 pages)

Y30-5002 IBM System/360 Disk Operating 30
System Queued Telecommunications Access
Method—Program Logic Manual

Program Number: 360N-CQ-470

This publication describes the internal logic of the Queued Telecommunications Access Method (QTAM) under the IBM System/360 Disk Operating System.

It is intended for persons involved in program maintenance and by systems programmers who are altering the program design. Program logic information is not necessary for the operation of the program; therefore, the distribution of this publication is limited to those with maintenance and alteration requirements. (200 pages)

Y33-9013 IBM System/360 Disk and Tape 29
Operating Systems—PI/I Subset—Library
Routines—Program Logic Manual

Program Numbers:
360N-PL-464 (DOS)
360N-PL-410 (TOS)

This publication describes the internal logic of the PL/I Subset library routines. This publication is intended for use by persons involved in program maintenance and by system programmers who are altering the program design.

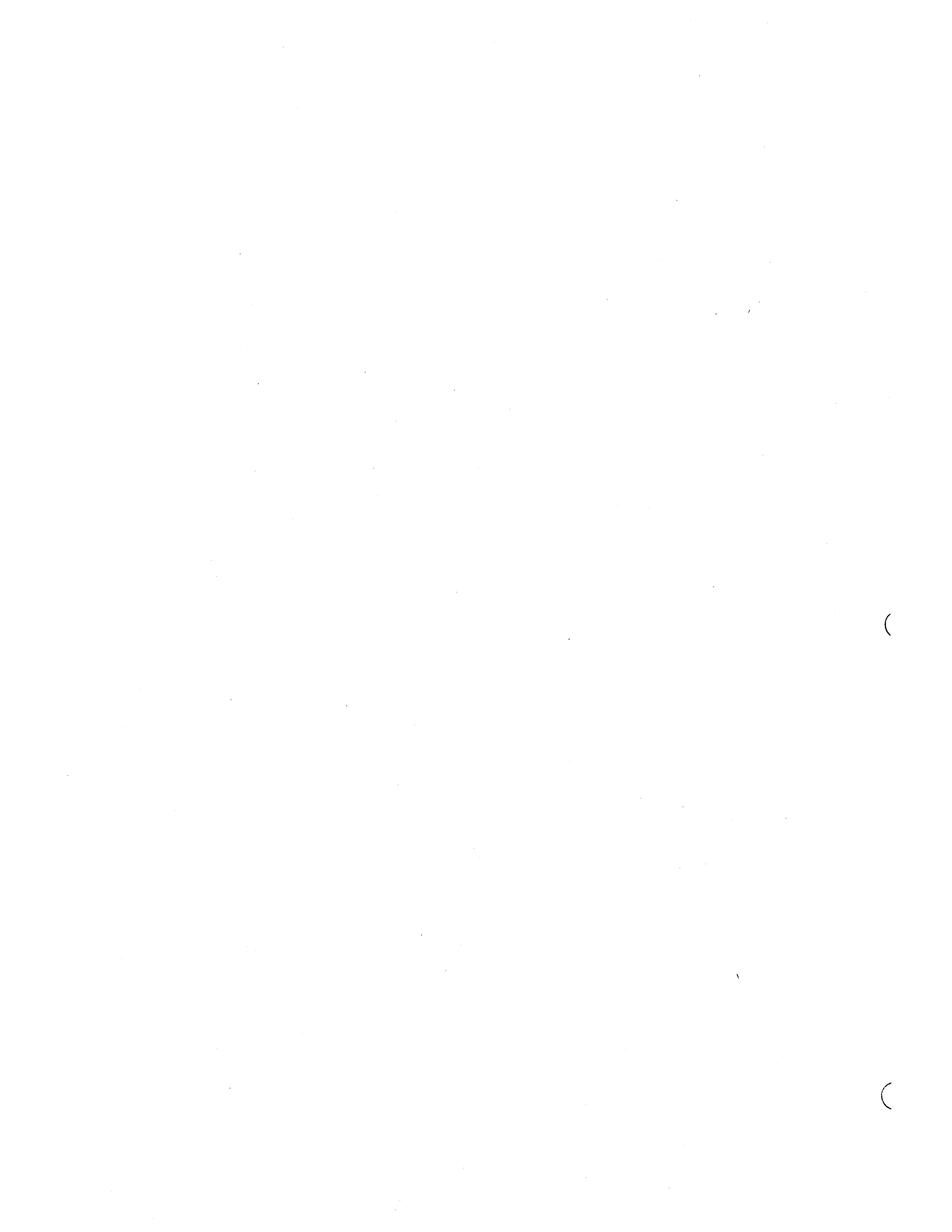
This publication contains information on (1) the characteristics of the library and the calling conventions used and (2) the structure and functions of the various routines.

The reader of this publication should be familiar with the *SAL* publications:

IBM System/360 Disk and Tape Operating Systems, PL/I Subset Language Specifications, Form C28-6809

IBM System/360 Disk and Tape Operating Systems, Assembler Specifications, Form C24-3414

For a list of further related publications, refer to *IBM System/360 Bibliography, Form A22-6822*. (168 pages)



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