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ARMY ADP PROCUREMENT

Contracting and Market Share Information

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Information Management and
Technology Division

B-238331

March 1, 1990

The Honorable John Conyers, Jr.
Chairman, Committee on Government Operations
House of Representatives

The Honorable Frank Horton
Ranking Minority Member, Committee on
Government Operations
House of Representatives

This report responds to your February 1989 requests for a comprehensive review of federal agencies' compatible computer procurements.[1] In your initial requests and in subsequent discussions with your offices, we were asked to answer several specific questions about 35 agencies' procurements of mainframe computers and mainframe peripheral equipment. Your questions focused on identifying the extent to which agencies' procurements of mainframe computers and mainframe peripherals required compatibility with International Business Machines (IBM) or any other computer manufacturer. You were also interested in knowing details such as the identification of manufacturers whose equipment was acquired by each agency and the procurement methods used to obtain equipment.

In addition to this report on the Army, we previously reported similar information on the Navy and the Marine Corps.[2] Information on the remaining 32 agencies will be reported after we have fully analyzed procurement data we collected from them.

Results in Brief

The information we obtained from the Army shows that during the 3 1/2 fiscal years ending in March 1989, about 98 percent of the Army's procurements for mainframes and mainframe peripherals required compatibility. The Army required IBM compatibility in 427 of its 478 compatible procurements (about 89 percent). Of the 51 remaining compatible

[1]A compatible procurement requires hardware or software that functions like specified or existing hardware or software, with little or no modification. Competition in such procurements may occur between manufacturers and marketers—such as system developers and system integrators—to supply equipment that meets the compatible requirements. Since there is the potential for competition between manufacturers and marketers, a compatible procurement does not necessarily result in the award of a sole source contract.

[2]NAVY ADP PROCUREMENT: Contracting and Market Share Information (GAO/IMTEC-89-66FS, Sept. 15, 1989).

solicit or obtain comments from the Army on this report. Appendix III contains additional details on the objective, scope, and methodology of our work.

As arranged with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days after the date of this letter. We will then send copies to the Secretary of Defense and the Secretary of the Army, and will also make copies available to others upon request.

This information was compiled under the direction of Jack L. Brock, Jr., Director, Government Information and Financial Management, who can be contacted at (202) 275-3195, should you require additional information. Other major contributors to this report are listed in appendix IV.

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Abbreviations

ADP	automated data processing
GAO	General Accounting Office
GSA	General Services Administration
IBM	International Business Machines, Inc.
IMTEC	Information Management and Technology Division

Figure I.1: Number of Army Mainframe and Mainframe Peripheral Procurements

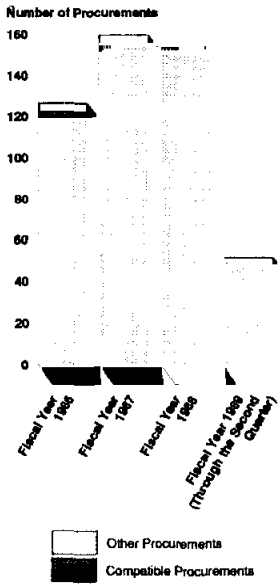


Figure I.2: Dollars for Army Mainframe and Mainframe Peripheral Procurements

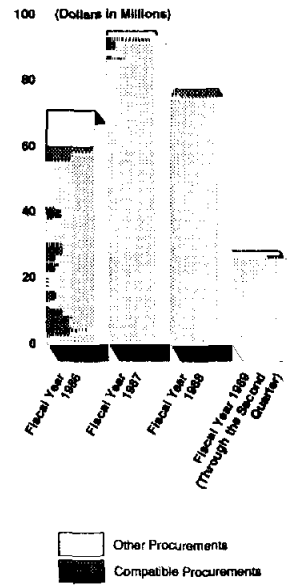
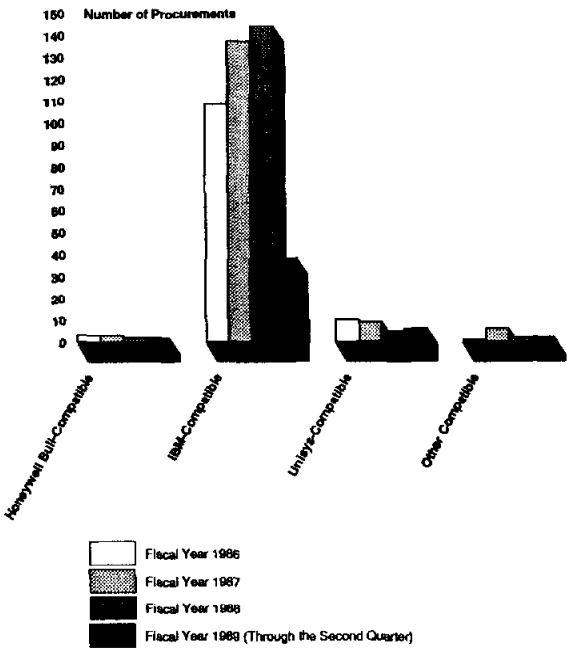


Figure I.3: Number of Army Compatible Procurements According to Type of Compatibility



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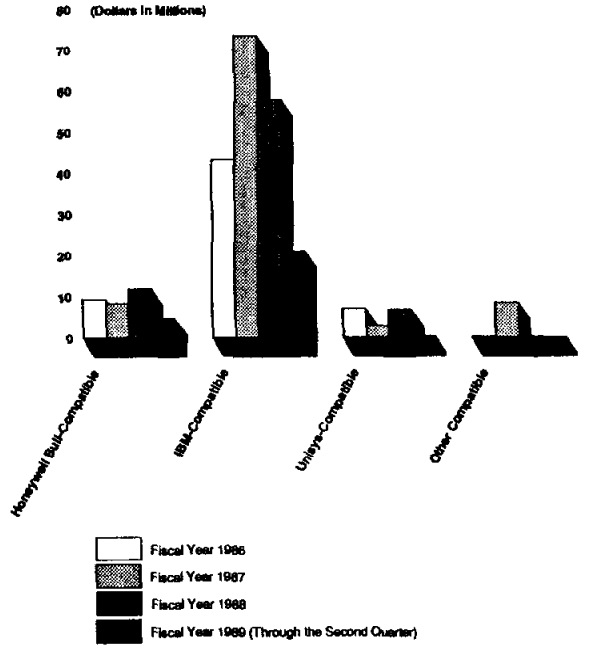
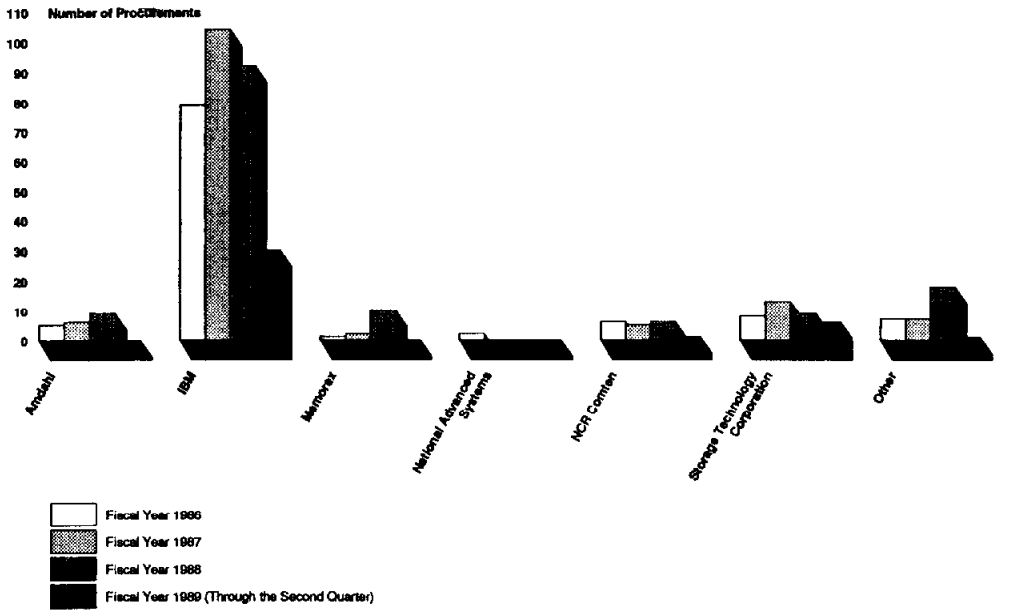


Figure I.5: Number of Army IBM-Compatible Procurements According to Manufacturer of Equipment



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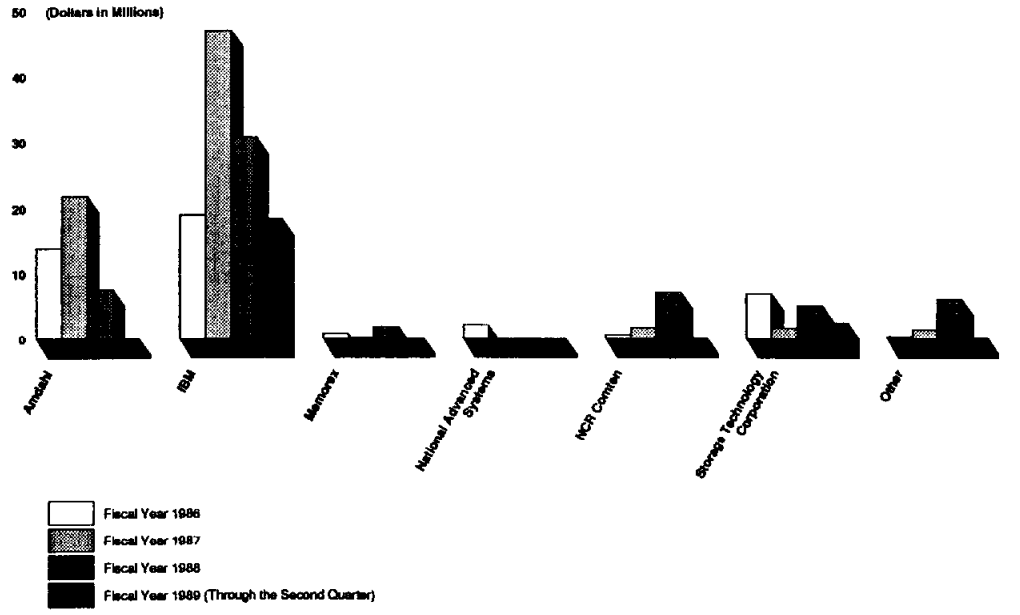


Figure I.7: Number of Army Compatible Procurements According to Procurement Method

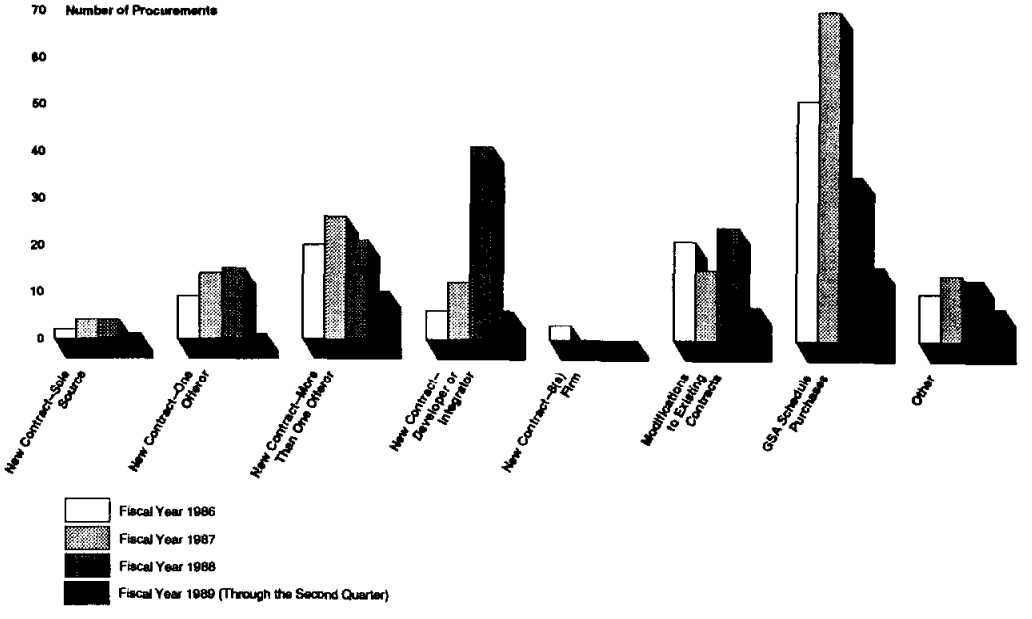


Figure I.8: Dollars for Army Compatible Procurements According to Procurement Method

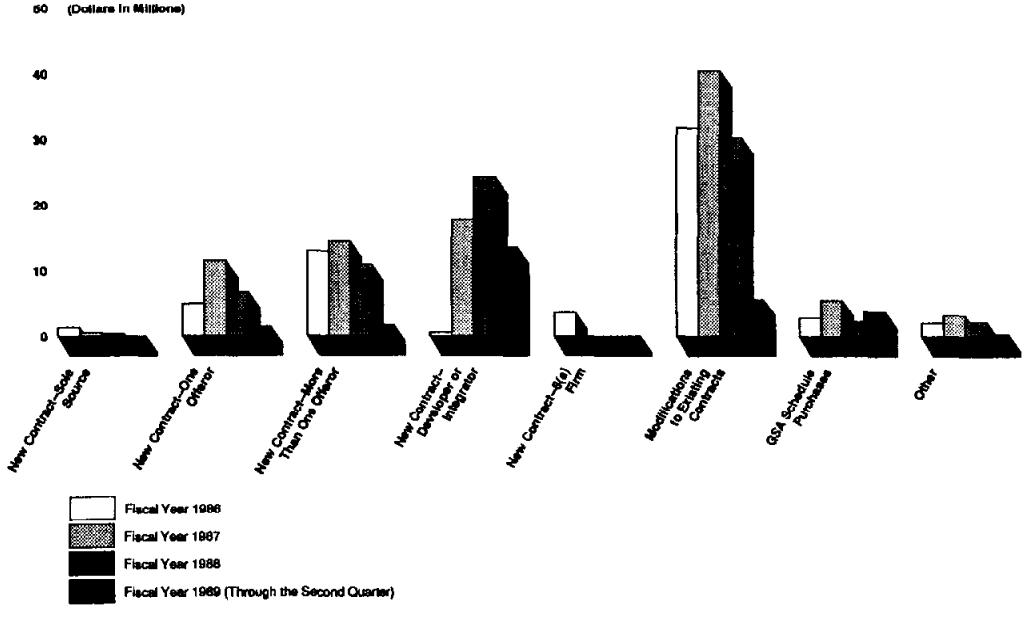
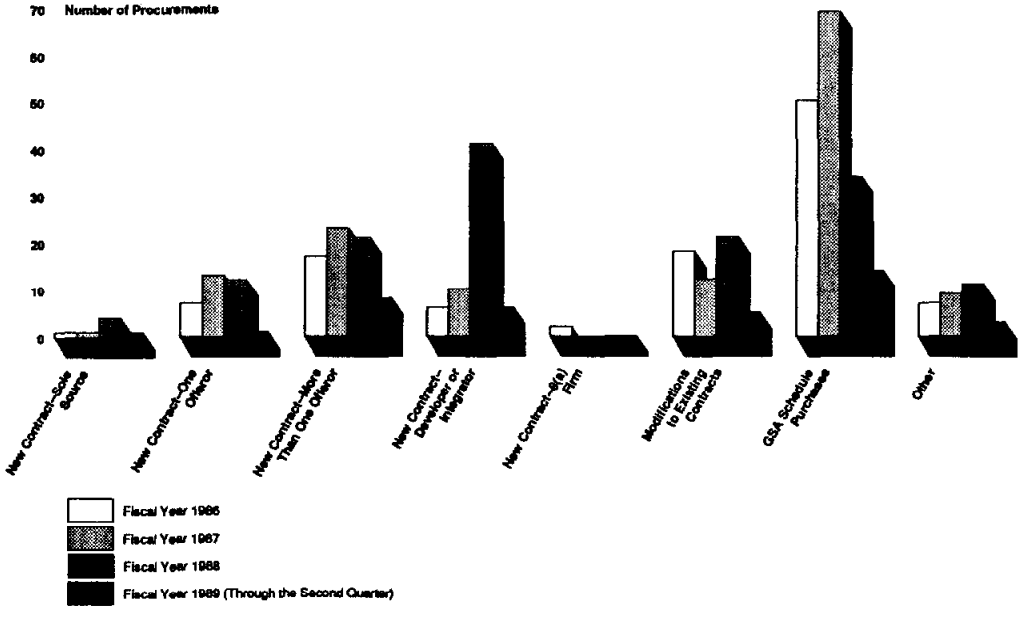


Figure I.9: Number of Army IBM-Compatible Procurements According to Procurement Method



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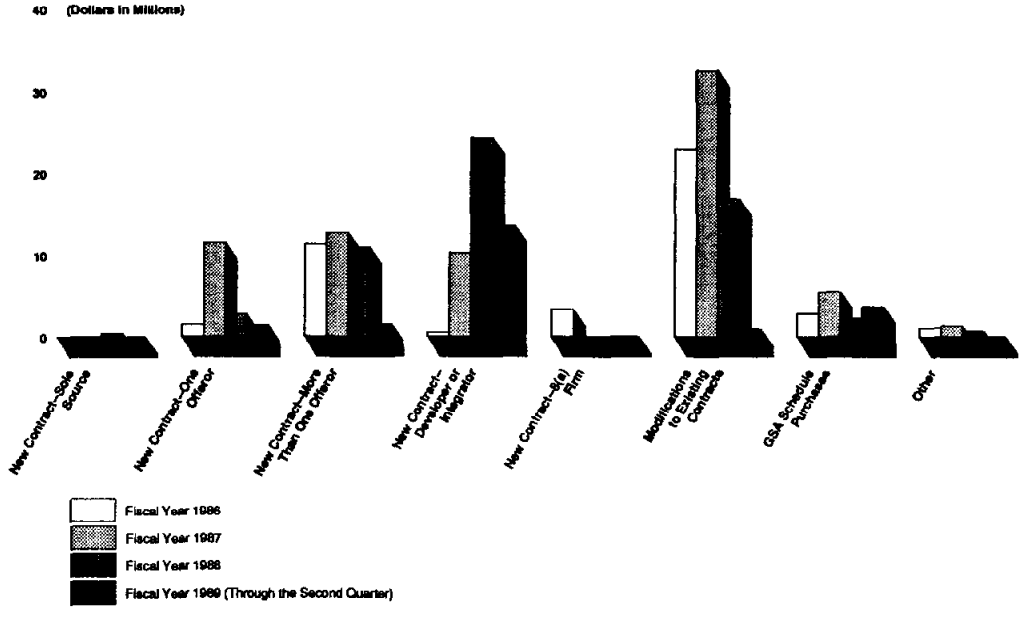


Figure I.11: Number of Army Mainframe and Mainframe Peripheral Procurements According to Manufacturer of Equipment

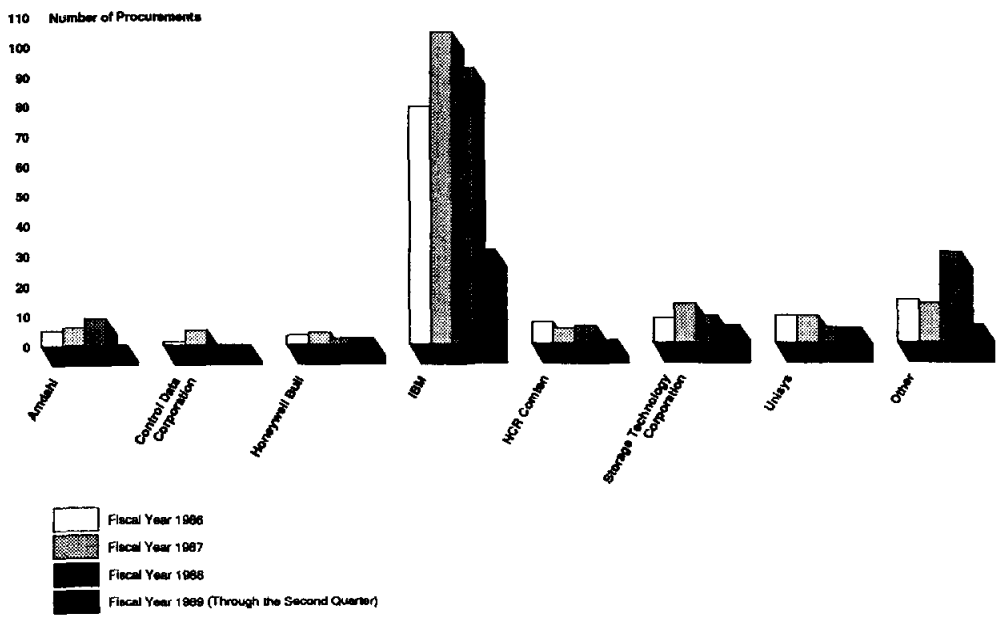
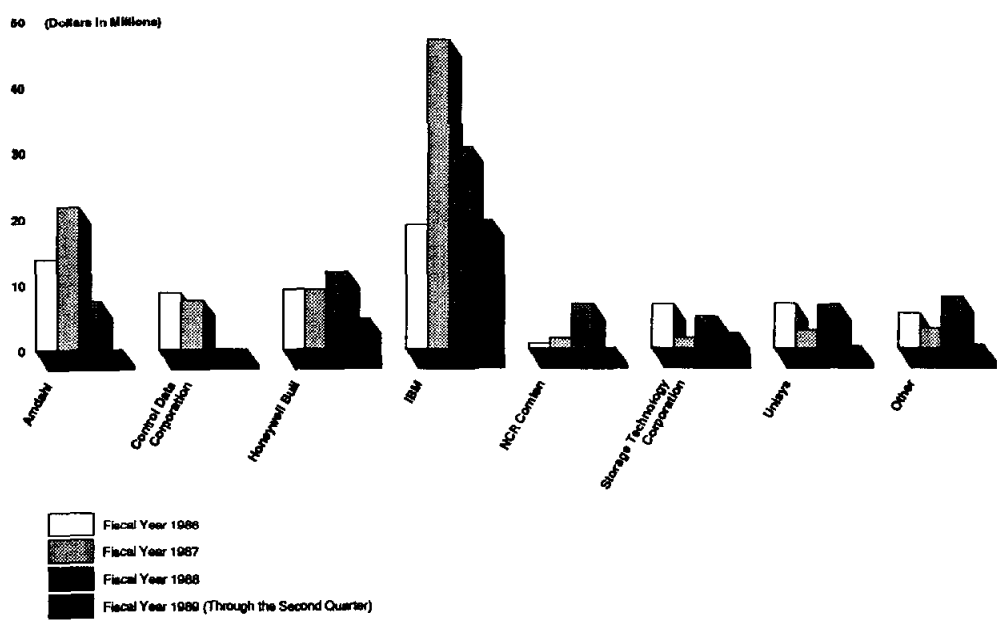


Figure I.12: Dollars for Army Mainframe and Mainframe Peripheral Procurements According to Manufacturer of Equipment



Detailed Statistics on Army Procurements

Table II.1: Army Mainframe and Mainframe Peripheral Procurements

Dollars in millions

	Fiscal Year 1986		Fiscal Year 1987		Fiscal Year 1988		Fiscal Year 1989[a]		Total	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Compatible	122	$59.4	155	$92.9	153	$76.7	48	$26.1	478	$255.1
Other	4	11.0	4	1.5	0	0.0	3	1.5	11	14.0
Total	**126**	**$70.4**	**159**	**$94.4**	**153**	**$76.7**	**51**	**$27.6**	**489**	**$269.1**
Compatible Percent of Total	97%	84%	97%	98%	100%	100%	94%	95%	98%	95%

[a]Fiscal year 1989 through the second quarter.

Table II.2: Army Compatible Procurements According to Type of Compatibility

Dollars in millions

	Fiscal Year 1986		Fiscal Year 1987		Fiscal Year 1988		Fiscal Year 1989[a]		Total	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Honeywell Bull-Compatible	3	$9.2	3	$8.3	2	$11.8	2	$4.7	10	$34.0
IBM-Compatible	108	43.0	137	73.4	144	57.8	38	21.0	427	195.2
Unisys-Compatible	10	6.9	9	2.8	5	6.8	6	0.3	30	16.8
Other Compatible	1	0.3	6	8.4	2	0.3	2	0.1	11	9.1
Total	**122**	**$59.4**	**155**	**$92.9**	**153**	**$76.7**	**48**	**$26.1**	**478**	**$255.1**

[a]Fiscal year 1989 through the second quarter.

Table II.3: Army IBM-Compatible Procurements According to Manufacturer of Equipment

Dollars in millions

	Fiscal Year 1986		Fiscal Year 1987		Fiscal Year 1988		Fiscal Year 1989[a]		Total	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Amdahl	5	$13.8	6	$21.8	9	$7.5	0	$0.0	20	$43.1
IBM	79	18.9	104	46.9	92	30.6	30	18.3	305	114.7
Memorex	1	0.7	2	0.1	10	1.7	0	0.0	13	2.5
National Advanced Systems	2	2.0	0	0.0	0	0.0	0	0.0	2	2.0
NCR Comten	6	0.5	5	1.6	6	7.0	1	0.1	18	9.2
Storage Technology Corporation	8	6.8	13	1.6	9	5.0	6	2.4	36	15.8
Other	7	0.3	7	1.4	18	6.0	1	0.2	33	7.9
Total	**108**	**$43.0**	**137**	**$73.4**	**144**	**$57.8**	**38**	**$21.0**	**427**	**$195.2**

[a]Fiscal year 1989 through the second quarter.

Table II.6: Army Mainframe and Mainframe Peripheral Procurements According to Manufacturer of Equipment

Dollars in millions

	Fiscal Year 1986		Fiscal Year 1987		Fiscal Year 1988		Fiscal Year 1989[a]		Total	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Amdahl	5	$13.8	6	$21.8	9	$7.5	0	$0.0	20	$43.1
Control Data Corporation	1	8.7	5	7.6	0	0.0	0	0.0	6	16.3
Honeywell Bull	3	9.2	4	9.1	2	11.8	2	4.7	11	34.8
IBM	79	18.9	104	46.9	92	30.6	31	19.5	306	115.9
Memorex	1	0.7	2	0.1	10	1.7	0	0.0	13	2.5
National Advanced Systems	2	2.0	0	0.0	0	0.0	0	0.0	2	2.0
NCR Comten	7	0.7	5	1.6	6	7.0	1	0.1	19	9.4
Storage Technology Corporation	8	6.8	13	1.6	9	5.0	6	2.4	36	15.8
Unisys	9	6.9	9	2.8	5	6.8	5	0.3	28	16.8
Other	11	2.7	11	2.9	20	6.3	6	0.6	48	12.5
Total	**126**	**$70.4**	**159**	**$94.4**	**153**	**$76.7**	**51**	**$27.6**	**489**	**$269.1**

[a]Fiscal year 1989 through the second quarter.

Table II.7: Army Mainframe and Mainframe Peripheral Procurements Under the Warner Amendment

Dollars in millions

	Fiscal Year 1986		Fiscal Year 1987		Fiscal Year 1988		Fiscal Year 1989[a]		Total	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
Compatible	2	$0.9	7	$11.0	4	$1.4	1	[b]	14	$13.3
Other	1	8.7	0	0.0	0	0.0	0	$0.0	1	8.7
Total	**3**	**$9.6**	**7**	**$11.0**	**4**	**$1.4**	**1**	**[b]**	**15**	**$22.0**

[a]Fiscal year 1989 through the second quarter.

[b]Represents less than $100,000.

In preparing instructions for our questionnaire, we recognized the need to clearly and consistently identify mainframe computers, as opposed to superminicomputers and supercomputers. Because technology and marketing strategies change, criteria such as storage capacity, processing speed, physical size, cooling requirements, and cost do not provide an adequate basis for clear and consistent identification of mainframes. Therefore, after consulting with computer vendors, GSA, other federal agency officials, and Datapro,[1] we considered computer performance, architecture, and vendor marketing strategy as the basis for classifying particular computers as superminicomputers, mainframes, or supercomputers. Like Datapro, we classified as mainframes some smaller and less expensive models if they belong to a product line, or family, of mainframes sharing a common architecture or operating system. However, models with similar performance characteristics which do not belong to a mainframe family and are manufactured by companies that are not traditionally recognized as mainframe manufacturers were not classified as mainframes. We provided a list of mainframe manufacturers and models in the instructions for our questionnaire as examples of computers that agencies should include in completing the questionnaire.

We obtained comments on preliminary copies of our questionnaire from information resources management officials at the Departments of Agriculture and Transportation, to aid in ensuring the questionnaire's clarity. Senior information resources management officials at the Army and 34 other federal agencies were requested to complete the questionnaire after we incorporated modifications based on comments received from officials at the Departments of Agriculture and Transportation.

Our questionnaire was furnished to the Army in mid-April 1989. Upon receiving Army's initial response in June 1989, the information was reviewed to determine if the instructions were followed correctly and if the information was clear and consistent. Although we did not independently validate the information supplied in the Army response, our questionnaire contained several internal checks to determine if inconsistencies were present. In instances where inconsistencies were found, we contacted Army officials to clarify the data. Following discussions with Army information resources management officials to resolve questions about the initial response, the Army supplied a revised response in September 1989. Our work did not include solicitation or evaluation of documents related to the Army's individual procurements.

[1]Datapro is a trade publication that provides detailed information on computers, peripheral equipment, and software.

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In order to obtain information consistent with the questionnaire instructions, we reviewed the Army's final response to our questionnaire, and excluded inappropriate data. For example, we directed the agencies to include only procurement data for mainframe-related equipment. However, in some instances, the Army included procurements for computers other than mainframes. In order to maintain consistency in the statistics across the 35 federal agencies, any procurements reported by the Army for equipment other than mainframes and related peripherals were deleted from our analyses. The figures and tables in appendixes I and II were developed from our analyses.

We did not solicit or obtain comments from the Army about this report, however, we discussed our scope and methodology with Army officials in January 1990. Our review was conducted from February 1989 through January 1990. Discussions were held with Army officials at the Pentagon. Additionally, meetings were conducted with the Department of Defense at the Pentagon, and the Department of Agriculture, the Department of Transportation, and the General Services Administration in Washington, D.C. Our work was performed in accordance with generally accepted government auditing standards.

Objective, Scope, and Methodology

In February 1989 we were requested by the Chairman and the Ranking Minority Member, House Committee on Government Operations, to perform a comprehensive review of the government's use of IBM-compatible ADP procurements. In response to the requests and in discussions with the Chairman's and Ranking Minority Member's offices, we agreed that procurements of mainframes and mainframe peripherals would be included in our review, with emphasis on compatible procurements. We also agreed that our review would cover procurements during the 3 1/2 fiscal years ending in March 1989, at 35 federal agencies.

Our primary objective was to obtain and analyze information on specific aspects of each agency's ADP-related procurements. This report focuses on the Army and includes the number and aggregate dollar value of the Army's mainframe-related contracts, distribution of procurements among equipment manufacturers, and information on use of the Warner Amendment in mainframe-related procurements. Additionally, we are reporting on the breakdown of various procurement methods the Army used to obtain mainframe-related equipment.

We used the following mutually exclusive procurement methods to group the Army's procurements. The first three methods represent specific types of new contracts with mainframe and peripheral equipment manufacturers. These consist of sole source new contracts; new contracts with one offeror that resulted from competitive procedures where only one company remained in the procurement at the time the awardee was selected; and new contracts with more than one offeror that resulted from competitive procedures where the awardee was selected from among multiple competitors. We also included a category for new contracts with developers and integrators that identified new contracts with companies that create systems using equipment manufactured by others—except those contracts separately categorized as awarded to 8(a) firms. We also obtained and analyzed data on the Army's modifications to existing contracts, use of GSA's multiple award schedule contracts, and other miscellaneous procurement methods.

To accomplish our objective and facilitate the Army's information gathering, we designed a questionnaire which, when properly completed by the Army, provided us with the necessary information. Our questionnaire included several charts and provided detailed instructions, with definitions and examples, to help the Army identify and report the relevant information. Our questionnaire instructions cited the Federal Acquisition Regulation to ensure consistency in understanding of the terms used and to identify key definitions.

Table II.4: Army Compatible Procurements According to Procurement Method

Dollars in millions

	Fiscal Year 1986		Fiscal Year 1987		Fiscal Year 1988		Fiscal Year 1989[a]		Total	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
New Contract—Sole Source	2	$1.3	4	$0.5	4	$0.4	1	[b]	11	$2.2
New Contract—One Offeror	9	4.9	14	11.4	15	6.7	1	$1.4	39	24.4
New Contract—More Than One Offeror	20	12.8	26	14.3	21	10.8	10	1.6	77	39.5
New Contract—Developer or Integrator	6	0.5	12	17.6	41	24.2	6	13.5	65	55.8
New Contract—8(a) Firm	3	3.5	0	0.0	0	0.0	0	0.0	3	3.5
Modifications to Existing Contracts	21	31.6	15	40.4	24	30.2	7	5.6	67	107.8
GSA Schedule Purchases	51	2.8	70	5.5	35	2.2	16	3.7	172	14.2
Other	10	2.0	14	3.2	13	2.2	7	0.3	44	7.7
Total	**122**	**$59.4**	**155**	**$92.9**	**153**	**$76.7**	**48**	**$26.1**	**478**	**$255.1**

[a]Fiscal year 1989 through the second quarter.

[b]Represents less than $100,000.

Table II.5: Army IBM-Compatible Procurements According to Procurement Method

Dollars in millions

	Fiscal Year 1986		Fiscal Year 1987		Fiscal Year 1988		Fiscal Year 1989[a]		Total	
	Number	Amount	Number	Amount	Number	Amount	Number	Amount	Number	Amount
New Contract—Sole Source	1	[b]	1	[b]	4	$0.4	1	[b]	7	$0.4
New Contract—One Offeror	7	$1.4	13	$11.4	12	2.7	1	$1.4	33	16.9
New Contract—More Than One Offeror	17	11.2	23	12.6	21	10.8	8	1.5	69	36.1
New Contract—Developer or Integrator	6	0.5	10	10.2	41	24.2	6	13.5	63	48.4
New Contract—8(a) Firm	2	3.3	0	0.0	0	0.0	0	0.0	2	3.3
Modifications to Existing Contracts	18	22.8	12	32.4	21	16.8	5	0.9	56	72.9
GSA Schedule Purchases	50	2.8	69	5.5	34	2.2	14	3.7	167	14.2
Other	7	1.0	9	1.3	11	0.7	3	[b]	30	3.0
Total	**108**	**$43.0**	**137**	**$73.4**	**144**	**$57.8**	**38**	**$21.0**	**427**	**$195.2**

[a]Fiscal year 1989 through the second quarter.

[b]Represents less than $100,000.

To what extent has the Army procured mainframe computers and mainframe peripheral equipment under the Warner Amendment?

The Army statistics showed that it conducted 15 procurements for mainframe computers and mainframe peripherals, representing $22 million in obligations, under the Warner Amendment. Of those 15 procurements under the Warner Amendment, 14 were compatible procurements. Those 14 procurements represented $13.3 million in obligations.

What equipment manufacturers are involved in the Army's mainframe and mainframe peripheral procurements, including both procurements where compatibility is required and procurements with no compatibility requirement?

IBM was the most active supplier of mainframe and mainframe peripheral equipment to the Army in each of fiscal years 1986 through 1988 and for the first half of fiscal year 1989, with 306 out of 489 total procurements. Additionally, using obligated dollars as the measure, the Army's obligations for IBM equipment during the same 3 1/2 year period were $115.9 of a total of $269.1 million. Amdahl, NCR Comten, and Storage Technology Corporation are IBM-compatible equipment manufacturers that were also involved in supplying equipment to the Army. Aside from these IBM-compatible manufacturers, Control Data Corporation, Honeywell Bull, and Unisys equipment was supplied to the Army during the 3 1/2 years.

What procurement methods were used to obtain IBM-compatible mainframe computers and mainframe peripheral equipment? And, did the Army frequently use new contracts with 8(a) contractors to obtain IBM-compatible mainframes and mainframe peripherals?

The Army most frequently used GSA schedule purchases as the procurement method for obtaining IBM-compatible equipment. However, modifications to existing contracts accounted for more dollar obligations than any other procurement method. New contracts with companies designated as 8(a) firms by the Small Business Administration were used by the Army on two occasions to obligate $3.3 million of the $195.2 million total obligated for IBM-compatible procurements.

What procurement methods were used to obtain all types of compatible mainframe computers and mainframe peripheral equipment? And, did the Army frequently use new contracts with 8(a) contractors to obtain compatible mainframes and mainframe peripherals?

Using the number of procurements as a measure, GSA schedule purchases were the most frequently used method of obtaining equipment when the Army identified compatible requirements. However, when measured using obligated dollars, the Army performed most procurements that required compatibility by modifying existing contracts. New contracts with companies designated as 8(a) firms by the Small Business Administration were used by the Army in 3 of 478 compatible procurements. All three of the 8(a) contracts were in fiscal year 1986.

What equipment manufacturers are involved in the Army's IBM-compatible mainframe and mainframe peripheral procurements?

The Army obtained IBM equipment in most of its IBM-compatible procurements in each of fiscal years 1986 through 1989 (through the second quarter). Of the 427 IBM-compatible procurements, 305 resulted in the Army obtaining IBM equipment. Similarly, of the $195.2 million obligated to IBM-compatible procurements, $114.7 million was for procurements involving IBM equipment. Amdahl, Memorex, National Advanced Systems, NCR Comten, and Storage Technology Corporation were among those manufacturers involved in the remainder of the Army's IBM-compatible procurements.

What is the distribution of the Army's compatible mainframe and mainframe peripheral procurements according to type of compatibility?

Those procurements that the Army identified as having a compatible requirement were for either Honeywell Bull, IBM, Unisys, or some other type of compatibility. Specifically, 427 of the 478 procurements were to satisfy IBM-compatible requirements representing $195.2 million of $255.1 million obligated for all compatible procurements. Also, Unisys-compatible requirements represented 30 of 478 procurements and $16.8 million of the obligations. While only 10 of the Army's compatible procurements were to meet Honeywell Bull-compatible requirements, they accounted for $34.0 million of the $255.1 million in obligations. The remaining 11 compatible procurements required compatibility with a variety of other hardware or software and represented obligations of $9.1 million.

Questions and Answers About Army Procurements

What are the numbers and dollar amounts of the Army's mainframe and mainframe peripheral procurements requiring compatibility and is there any trend toward the increased use of compatible procurements?

The Army initiated a total of 489 procurements and obligated a total of $269.1 million for mainframe computers and mainframe peripherals during the 3 1/2 fiscal years ending in March 1989. The Army statistics showed that compatible procurements comprised 478 of the Army's 489 total procurements, representing $255.1 million of the $269.1 obligated. In each year of the 3 1/2 fiscal years ending in March 1989—using the Army's number of procurements as a measure—the percentage of compatible procurements versus other procurements was about 94 percent or higher. For the same time period, the percentage of dollars obligated to compatible procurements versus other procurements was about 84 percent or higher in each year. Since the Army's statistics indicate a consistently high percentage of compatible procurements, there was no trend toward increased compatible procurements.

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procurements, the Army required that 40 have Honeywell Bull or Unisys compatibility[3] (about 8 percent) while 11 required some other type of compatibility (about 2 percent). When the Army's procurements required IBM compatibility, IBM equipment was supplied in 305 of those 427 IBM-compatible procurements (about 71 percent). Furthermore, IBM was the manufacturer that most frequently supplied equipment for the Army's mainframe and mainframe peripheral procurements overall, including both compatible and other procurements where no compatibility was required. When we used dollars for comparison—as opposed to the number of procurements—we found that in each fiscal year covered, the Army obligated more dollars to (1) IBM-compatible procurements than to any other type of compatible procurement and (2) IBM than to any other equipment manufacturer.

As requested in discussions with your offices, we also obtained information from the Army on the procurement methods it used, including the Army's use of contractors that participate in the Small Business Administration's program for small disadvantaged businesses—known as 8(a) contractors. Additionally, we collected information on the Army's procurements performed under the Warner Amendment (10 U. S. C. 2315), which exempts the Department of Defense from General Services Administration (GSA) oversight when procuring certain military-related automated data processing (ADP) resources. The detailed questions you asked and our answers are summarized in appendix I. Appendix II contains tables with detailed statistics that are the basis for our answers to your questions.

We agreed with your offices to collect and report information for the 3 1/2 fiscal years from October 1, 1985, through March 31, 1989. All the information we are reporting is based on the Army's response to a questionnaire we devised and distributed to the 35 agencies. We did not independently validate the information, which the Army supplied in June 1989, nor did we evaluate any documentation related to individual Army procurements. However, we checked the Army's information for consistency with the instructions for our questionnaire and, in September 1989, the Army clarified and revised the original information it provided after we questioned several items. At your request, we did not

[3]Since several companies manufacture and market IBM-compatible equipment, competition in IBM-compatible procurements may occur among a variety of manufacturers and marketers. However, there are few if any companies that manufacture equipment compatible with Honeywell Bull or Unisys. As a result, competition in procurements requiring Honeywell Bull or Unisys compatibility generally occurs only between the manufacturer of the required equipment and companies marketing that manufacturer's equipment.