The attractive cost savings offered by plug-compatible mainframes (PCM) have made users take a closer look at PCMs. In 1975 the PCM industry was to see its first entry with the installation of Amdahl's 470/V6 system. Since that time, other vendors have successfully competed for a share of the market. The primary thrust of the PCM manufacturers has been to provide cost-effective alternatives to the IBM System/370, 303X Series, 308X, and 4300 Series computers.

Plug-compatible mainframes can be installed easily, can replace or augment IBM mainframes with little or no need for changes in software or operating procedures, and can be expected to perform reliably and efficiently. What's more, most of the PCM suppliers have demonstrated their ability to provide first-class field maintenance and software support.

Should your organization install a PCM? And if so, which one? This report is designed to help you answer those questions by assessing the pros and cons of PCMs in general, profiling their current suppliers, and presenting the characteristics of 55 PCMs from 7 vendors in detailed comparison charts.

The PCM Concept

Plug-compatible mainframes are typically defined as computer mainframes that can directly execute all application programs and systems software written for the IBM System/370, 303X Series, 308X Series, and/or 4300 Series computers and can utilize the peripheral equipment available for these computers. The PCM concept would, of course, be equally applicable to the computers made by Burroughs, Honeywell, Sperry, or any other mainframe supplier. IBM, with its large user base, attracts the most serious attention from the PCM vendors. Two manufacturers, Telefile Computer Products (Irvine, CA) and Foonly, Plug-compatible mainframes offer attractive alternatives to IBM's medium— and large-scale computer systems. This report discusses the pros and cons of installing a PCM, profiles the current PCM suppliers, and provides detailed comparison charts describing 55 systems from 7 vendors.

Inc. (Mountain View, CA), have developed systems that are compatible with non-IBM product lines. Telefile's T-85 is compatible with the Xerox Sigma family of systems, while Foonly's F1 through F5 systems are compatible with the Digital Equipment DECsystem-10 and DECSYS-TEM-20 families.

The PCM industry resulted from the convergence of two important trends:

- The widespread availability and user acceptance of plugcompatible peripherals designed to directly replace IBM's own magnetic tape units, disk storage units, printers, terminals, and even main memory units. From there, the next logical step was to offer replacements for the IBM central processors themselves.
- The acknowledgement that the IBM System/360 and System/370 instruction set has become a de facto standard for the industry, and that most IBM computer users will not seriously consider switching to a computer that requires extensive reprogramming. A number of systems were developed in the 60s by RCA and Sperry which used the System/360 instruction set but were incompatible with systems software and peripherals. The next logical step, which was first taken by Amdahl Corporation, was to build computers which exhibited total functional com-



National Advanced Systems' AS/8000 Series was introduced to the plug-compatible marketplace second quarter 1983. There are three models in the Series, the AS/8040, AS/8050, and the AS/8060. These uniprocessors compete with IBM's 3083. The AS/8040 competes with the 3083E, the AS/8050 competes with the 3083B, while the AS/8060 targets the 3083J. Memory available with the Series ranges from 8 megabytes to 32 megabytes. Both the AS/8040 and AS/8050 are field upgradable.

					IBM	IBM	IBM	IBM
	Amdahl	IPL	Magnuson	NAS	<u>S/370</u>	4300	<u>303X</u>	<u>308X</u>
Ease of operation	3.37	3.75	3.58	3.18	3.09	3.20	3.13	3.25
Reliability of Mainframe	3.57	3.73	3.68	3.50	3.33	3.80	3.59	3.61
Reliability of Peripherals	3.17	3.38	3.31	2.93	3.05	3.36	3.30	3.25
Responsiveness of maintenance service	3.41	3.55	3.42	3.55	3.19	3.40	3.34	3.38
Effectiveness of maintenance service	3.41	3.55	3.26	3.41	3.13	3.36	3.32	3.35
Technical support								
Trouble-shooting	3.40	3.40	3.00	3.02	2.74	2.87	2.97	3.16
Education	2.95	3.00	2.59	2.61	2.64	2.72	2.87	2.96
Documentation	2.92	3.00	2.67	2.63	2.67	2.67	2.70	2.88
Ease of programming	3.00	3.20	3.23	2.96	2.96	2.95	2.62	2.93
Ease of conversion	3.09	3.50	3.57	3.21	2.95	2.95	2.94	3.21
Overall satisfaction	3.31	3.11	3.39	3.21	3.06	3.17	3.16	3.28

> patibility with the IBM mainframes and could use all the same software and peripheral equipment.

To date, Amdahl, NAS and others, have proven the viability of the PCM concept, and it appears the industry will play an important role in the 1980s.

The current trend in the PCM industry is to target a family of systems toward a specific IBM product line, rather than be all things to all users. For example, Amdahl Corporation pits its 470 and 580 Series against IBM's high-end systems, the System/370 and 303X Series, and the 3081, respectively. Firms like Cambex, IPL Systems, and Magnuson compete with IBM's popular 4300 Series. Storage Technology Corporation, a maker of plug-compatible peripherals, has entered the PCM market to compete in the large mainframe arena. A new company, Trilogy, formed by Amdahl founder Gene Amdahl, intends to develop systems to compete in the 303X Series range. With high technology costs and the costs associated with maintenance and software support to consider, it is eminently more practical for a manufacturer to concentrate on a particular IBM product line. The various manufacturers and their product lines appear to bear this out.

User Reaction

Four PCM manufacturers—Amdahl, IPL, Magnuson, and NAS—were represented in Datapro's 1983 survey of computer users. We received a total of 46 responses from Amdahl 470 Series users, 19 responses from Magnuson M80 Series users, 32 responses from NAS AS Series users, and 12 responses from IPL 4400 Series users.

Using 11 of Datapro's rating criteria and our usual scale of 4.0 for Excellent, 3.0 for Good, 2.0 for Fair, and 1.0 for Poor, we've compiled the weighted average ratings these users have assigned to their systems, and present the results in the chart above.

For comparison we've also included the weighted averages of the IBM system families the PCMs compete with, the System/370 (126 responses), 4300 (171 responses), 303X (183 responses), and 308X (107 responses).

As you can see, the user ratings earned by the PCM vendors once again compared favorably with those of IBM in all 11

categories. The PCM vendors were rated comparable to and in some instances above IBM in key categories like overall satisfaction, ease of conversion, technical support, and both responsiveness and effectiveness of maintenance service. Equipment reliability was essentially a stand-off between IBM and the PCMs, with all the parties earning high ratings. Thus, it seems clear that a wisely chosen PCM can yield worthwhile cost savings without imposing offsetting penalties in any of the other areas that help to determine overall user satisfaction.

PCM Pros and Cons

The first and foremost advantage of plug-compatible mainframes is, of course, the prospect of substantial *increases in processing power per dollar*. The user can elect to realize this price/performance gain in either of two distinct ways: 1) by choosing a PCM that delivers performance comparable to that of a certain IBM mainframe but is offered at a lower price; or 2) by choosing a PCM that has a price tag comparable to that of a certain IBM mainframe but offers more processing power. The PCM vendors tend to position their product offerings so that users can elect either approach or, in some cases, a combination of the two (i.e., somewhat more power at a somewhat lower cost).

Faster delivery is another advantage that the PCM vendors have enjoyed over IBM. The slow delivery schedule of IBM's 4300 and 303X systems generated many sales opportunities for the PCM vendors, who typically could ship a system 30 to 60 days ARO. This situation is gradually diminishing, however, especially in the very large system arena. IBM's 3081 processor, the first in the H–Series, was scheduled for shipment late in 1981. Of its two announced competitors, the NAS AS/9000DPC was scheduled for a late-1981 first delivery, and the Amdahl 580 Model 5860 was slated for August 1982. The tide is gradually turning.

Becoming a *multiple-vendor shop* can be viewed as either an advantage or disadvantage of installing a PCM. Some users are still "true-blue" IBM loyalists, who fear that their IBM service will deteriorate and every hardware problem will result in a nasty "finger-pointing" session if they allow any non-IBM equipment into their shops. Conversely, other users are convinced that dealing with multiple vendors helps to "keep IBM honest" and leads to better overall service and support.



Amdahl Corporation has concentrated on technology that enables its computers to deliver more performance per dollar than comparable IBM models. Amdahl's 580 Series is targeted at IBM's 3081 processors and consists of five models, the single-processors 5840, 5850, 5860 (shown here) and the dual processors 5870 and 5880. The 580 Series processors feature from 16 to 32 megabytes of main memory and from 16 to 32 I/O channels per CPU. Amdahl is the original plugcompatible mainframe supplier and is also one of the most active PCM participants today.

Three potential disadvantages are commonly cited by prospective PCM users: the possibility of hardware or software incompatibilities, the possibility of weak vendor support, and the possibility that their PCM vendor may not survive. Each of these problems can be minimized through careful selection of a well-qualified vendor.

Incompatibilities in hardware or software were widely feared by early PCM users, but Datapro's user surveys have clearly shown that users who choose to deal with established PCM suppliers need have no fears. What's more, most PCM manufacturers have demonstrated their ability to develop the specialized hardware and/or software needed to maintain full compatibility when IBM adds new functions to its systems. Conversely, users who decide to deal with a newer PCM vendor should demand proof (in the form of a rigorous benchmark test) and/or an iron-clad guarantee that the new mainframe will be totally compatible with their IBM equipment, systems software, and application programs.

Poor vendor support is another frequently expressed worry of prospective PCM users. Our user survey results indicate that Amdahl, IPL, Magnuson, and NAS have all established viable field service and support organizations. These vendors attempt to be responsive and were found in our survey to be more responsive than IBM. As always, it's up to the buyers to determine the amount of service and support they need and are willing to pay for, and then to select a PCM vendor that can and will provide it.

Vendor survival has always been a topic of concern to PCM buyers, and the PCMs' long-term survival will depend upon their continued ability to maintain full compatibility together with a worthwhile price/performance advantage over the steadily improving mainframes that IBM will undoubtedly offer.

The PCM Suppliers

Amdahl Corporation, which was formed in 1971 and delivered its first computer in June 1975, is one of the leading suppliers of IBM-compatible mainframes, with several hundred installations nationwide. The firm's software development efforts have resulted in significant improvements over comparable IBM products. Amdahl also offers its Universal TimeSharing System (UTS), which is based on the Unix operating system developed by Bell Laboratories.

Amdahl focuses on the upper end of IBM's mainframe product line and has developed advanced technology that enables its computers to deliver more performance per dollar than the comparable IBM models. The current Amdahl 470 Series processor line ranges from the 470V/7 family which is comparable in performance to the IBM 3032 and 3033 uniprocessors, to the 470V/8, which is comparable to the dual-processor IBM 3033MP. These 470 systems are currently not in new production. Amdahl's largest systems, the 580 Series, are targeted at IBM's 3081, as well as future IBM offerings in that size range.

Cambex Corporation, formerly Cambridge Memories, Inc., is best known as a supplier of add-on memory for IBM System/360 and System/370 computers and for various minicomputers. Cambex entered the PCM market in 1977 with replacements for the System/370 Model 115 and 125, but the firm is now concentrating its attention on the IBM 4300 Series. The current product line consists of five models, the 1636–1, 1636–10, 1641–1, 1641–11 and 1651–1, that bracket the 4300 product line. The 1636–1, however, is not in new production.

Control Data Corporation has withdrawn from the plugcompatible market.

► IPL Systems, Inc. has been building PCMs for use since 1977, and the company currently supports OEM agreements with Masstor in the U.S., Olivetti and other distributors in Europe, the Middle East, and the Far East. The company also has a joint development agreement to design and build compatible CPUs with Mitsubishi Electric Corporation using advanced ECL large-scale integration gate array technology. IPL saw an opportunity for growth by selling directly to end users, and in October 1980, announced their 4400 Series. IPL has about 400 systems installed and on order worldwide, of which over 120 have been sold directly to end users in the U.S. IPL delivered the 4480 the first quarter 1983, and in the second quarter 1983 delivered their 4460.

Magnuson Systems Corporation has become a key PCM supplier. Magnuson's "Strategic Architecture" permits easy field upgrading of the processor, memory, and I/O channels, as well as rapid adaptation to maintain compatibility with new IBM functions or features. The current product line consists of the M80/30, which competes with the IBM 4331-1; the M80/20, which competes with the IBM 4331-2; the M80/31 and M80/32, which are targeted at the IBM 4331-2 market; the M80/41, which competes with the IBM 4341-10; and the M80/42 and M80/43, which compete with the IBM 4341-1. Magnuson has discontinued the larger M80/44.

National Advanced Systems Corporation (NAS) is the wholly owned subsidiary of National Semiconductor Corporation that was formed in October, 1979 to take over nearly all of Itel Corporation's IBM-compatible mainframe business. NAS took over Itel's worldwide computer activities, acquired Itel's inventory of computers, and assumed the maintenance and support responsibilities for all of Itel's installed computer base, including those systems manufactured by Hitachi, Ltd.

The company's current product line includes the AS/5000 Series, AS/7000 Series, AS/9000 Series, AS/6600 Series, AS/8000 Series.

Nixdorf Computer Corporation introduced the 8890 product family to the United States in the second quarter 1982. One of the largest subsidiaries of Nixdorf AG, Germany, Nixdorf Computer Corporation is offering a product line equivalent to the lower end of the IBM 4300 and System/370 mainframes but with a price/performance target of at least 15 percent over IBM. The 8890 product family features four models: the 8890/10, 8890/30, 8890/50, and 8890/70.

STC Ultimacc Inc. is a subsidiary of Storage Technology Corporation, one of the world's largest manufacturers of compatible storage devices. STC Ultimacc was formed in 1982 with the purpose of developing and marketing IBMcompatible alternative business systems. These systems are being marketed by another Storage Technology subsidiary, STC Systems, Inc.

Three systems are available from STC: the USX39 and USX40 systems, which were initially delivered first quarter

1983 and which compete with the IBM 4331-2, plus the USX44 system which was initially delivered second quarter 1983 and which competes with the 4341-2. The USX-series complete computer systems for business applications are said by STC to be 20 percent to 40 percent lower in price than comparable IBM-compatible systems.

The Comparison Charts

The principal characteristics of those processors that are plug-compatible with IBM computers are presented in the accompanying comparison charts. The entries for each model are spread across two facing pages to maximize the amount of useful information in the charts. All information in the charts was furnished by the seven vendors whose products are represented.

The entries on the left-hand pages of the comparison charts and their significance are explained in the following paragraphs:

Model refers to the product number as known in the equipment price book or list of the vendor or manufacturer.

Date of introduction indicates when the processor was first announced to the public in the U.S.

Production status indicates whether the processor is now in new production or being sold from returned and refurbished stocks.

Operating systems indicates the IBM monitoring software that will run on the processor. All operating systems that apply to a particular processor are specified.

Virtual storage capability defines the presence of a hardware/software feature enabling the user to access and utilize memory space without regard to its existence in real main memory or auxiliary memory space.

The *Clock comparator* is a hardware feature that causes an interruption when the time-of-day equals or exceeds the value specified by a program or virtual machine.

The *CPU timer* measures the elapsed processing unit time and causes an interruption when a previously specified amount of time has elapsed.

Control registers are used for operating systems control of relocation, priority interruption, program event recording, error recovery, and masking operations.

CPU one-level addressing is a synonym for direct addressing, where the instruction contains the actual address of the data being requested.

A *doubleword buffer* consists of a 64-bit area temporarily reserved for data used in performing an I/O operation.

The *interval timer* is a 32-bit decremental counter that is reduced by one several hundred times per second. The \triangleright



The USX-Series, marketed by STC Systems, Inc., are compatible 4300 series plug-compatible business systems. These systems include a processor, built to STC Ultimacc's specifications, and employ the latest high-performance disk, tape, and printer peripherals from Storage Technology. Local or remote terminals and front-end telecommunications processors and modems are available with each USX system.

timer generates an interrupt when the contained value is decremented from a positive to a negative number.

Machine check handling analyzes errors and attempts recovery by retrying the failed instruction if possible. If retry is unsuccessful, it attempts to correct the malfunction or to isolate the affected task.

Multiple bus architecture implies that the various segments of the processor (namely, memory, arithmetic and logic, central control, etc.) are tied together by more than one central bus.

Storage protection determines the right of access to main storage by matching a protection key associated with a store or fetch reference to main storage with a storage key associated with each block of main storage.

The *time-of-day-clock* is incremented once every microsecond and provides a consistent measure of elapsed time suitable for the indication of data and time.

Some channels have the capability to perform *channel command retry*, a channel and control-unit procedure that causes a command to be retried without requiring an I/O interruption.

Channel indirect addressing (CIA) is a companion feature to dynamic address translation, providing data addresses for I/O operations. CIA permits a single channel command word to control the transmission of data that crosses noncontiguous pages in real main storage. If CIA is not indicated, then channel one-level (direct) addressing is employed. The *byte oriented operand feature* permits storage operands of most non-privileged operations to appear on any byte boundary. Instructions must appear on even byte boundaries. The feature does not pertain to instruction addresses.

The extended precision floating point feature provides instructions to handle floating point numbers with a fraction of 28 hexadecimal digits. The characteristic is seven bits plus sign in short and extended floating point numbers.

The high speed floating point feature provides a means for improved execution of the floating point instruction set.

The System/370 Universal Instruction set is composed of storage protection, standard instruction set, decimal arithmetic, extended precision, dynamic address translation, and instructions to facilitate programming and reduce execution times for record blocking and unblocking.

The console audible alarm is a device activated when predetermined events occur that require operator attention or intervention for system operation.

The *integrated console printer* is an integral part of the system console, furnishing hard copy output from the console display.

A *light pen* is a photosensitive stylus used to detect and identify elements displayed on the console CRT.

A remote console is a console attached to a system through a data link. The remote console is configured in addition to the standard console.



IPL Systems' 4480 (shown here) and the 4460 are IPL's newest models in the PCM marketplace and were delivered the first quarter 1983. Both models have memory sizes ranging from 1 to 16 megabytes and include from 3 to 10 channels. The model 4480 is claimed by IPL to be the industry's first and only fault tolerant IBM compatible computer. IPL has been making PCMs since 1977 and its product line includes, in addition to the 4460 and 4480, the IPL 4436, 4443, 4445, and 4446.

The *remote data link* allows establishment of communications with a technical data center to remotely diagnose system malfunctions.

The *console file* is the basic microprogram loading device for the system, containing a read-only file device. The medium read by this device contains all the microcode for field engineering device diagnostics, basic system features, and any optional system features.

The *CPU activity monitor* can be either hardware or software. It provides a measure of CPU utilization by various hardware or software elements.

The extended control mode (EC) is a mode in which all features of the System/370 computing system, including dynamic address translation, are operational.

Program event recording is a hardware feature used to assist in debugging programs by detecting and recording program events.

The virtual machine assist feature provides an assist to VM/370 firmware emulation of certain privileged operations. The feature causes a reduction in real supervisor time used by VM/370 to control the operation of virtual storage operating system such as DOS/VS and OS/VS1.

Under *other features and comments* any additional information that may help to give you a feel for the distinctive attributes of each unit is included.

The right-hand pages of the charts compare Processor Performance, I/O Channels, Control Storage, Pricing, and Availability, and identify the manufacturer and vendor of each processor. These entries should all be self-explanatory.



The Magnuson M80 Series added to its product line a new entry level system, the M80/20, which was delivered in the fall of 1982. This system competes with the IBM 4321. There are seven models in the Magnuson M80 Series, all compatible with IBM's 4300 Series. There is an array of CPU and I/O configurations that permit the user to upgrade the M80 System to match his/her data processing requirements.

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Manufacturers/Vendors

Amdahl Corporation, 1250 East Arques Avenue, Sunnyvale, California 94086. Telephone (408) 746–6000.

Cambex Corporation, 360 Second Avenue, Waltham, Massachusetts 02154. Telephone (617) 890-6000.

IPL Systems Inc., 1317 Main Street, Waltham, Massachusetts 02154. Telephone (617) 890–6620.

Magnuson Systems Corporation, 2902 Orchard Park Way, San Jose, California 95134. Telephone (408) 946-8100.

National Advanced Systems, 800 East Middlefield Road, Mountain View, California 94043. Telephone (415) 962–6100.

Nixdorf Computer Corporation, 168 Middlesex Turnpike, Burlington, MA 01803. Telephone (617) 890–3600.

STC Ultimacc Systems, Inc., (STC Systems, Inc.) 4 North Street, Waldwick, New Jersey 07463. Telephone (201) 445-5050.

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Multiple Dus architecture standard Stan		Chandard	Standard	Standard	Standard
Storage protection Standard	iviuitiple bus architecture	Standard	Standard	Standard	Standard
Time-of-day clock Standard Standard Standard Standard Channel iommand retry Standard Standard Standard Standard Channel iommand retry Standard Standard Standard Standard System ofisitot operand feature Standard Standard Standard Standard Extended precision floating point Standard Standard Standard Standard System/370 Universal Instruction set Standard Standard Standard Standard Console audible alarm Standard Standard Standard Standard Itegrated Console printer No No No No No Remote console Standard Standard Standard Standard Console file Standard Standard Standard Standard Console file Standard Standard Standard Standard Console file Standard Standard Standard Standard CPU activity monitor Optional Optional Optional Optional CPU activity monitor Optional Standard Standard Standard Standard Standard Standard Standard Standard	Storage protection	Standard	Standard	Standard	Standard
Channel intertyStandard	Time-of-day clock	Standard	Standard	Standard	Standard
Channel indirect addressingStandardStandardStandardStandardByte oriented operand featureStandardStandardStandardStandardExtended precision floating pointStandardStandardStandardStandardHigh speed floating pointStandardStandardStandardStandardSystem/370 Universal Instruction setStandardStandardStandardStandardConsole audible alarmStandardStandardStandardStandardIntegrated Console printerNoNoNoNoNoNoNoNoNoNoRemote consoleStandardStandardStandardConsole fileStandardStandardStandardConsole fileStandardStandardStandardCPU activity monitorOptionalOptionalOptionalCPU activity monitorOptionalStandardStandardProgram event recordingStandardStandardStandardVirtual machine assistVM/SAVM/SAVM/SAVIHER FEATURES &Air cooled; two-byte channel interface optionalAir cooled; 470 accelerator; 470 extended performance accelerator;Air cooled; 470 accelerator; 400 extender performance accelerator;	Channel command retry	Standard	Standard	Standard	Standard
Byte oriented operand feature Standard	Channel indirect addressing	Standard	Standard	Standard	Standard
Extended precision floating pointStandard <th< td=""><td>Byte oriented operand feature</td><td>Standard</td><td>Standard</td><td>Standard</td><td>Standard</td></th<>	Byte oriented operand feature	Standard	Standard	Standard	Standard
High speed floating pointStandardStandar	Extended precision floating point	Standard	Standard	Standard	Standard
System/370 Universal Instruction set Console audible alarm Standard Standard Standard Standard Standard Integrated console printer No No No No No Light pen No No No No No Remote console Standard Standard Standard Standard Remote console Standard Standard Standard Standard Remote console Standard Standard Standard Standard Standard Console file Standard Standard <t< td=""><td>High speed floating point</td><td>Standard</td><td>Standard</td><td>Standard</td><td>Standard</td></t<>	High speed floating point	Standard	Standard	Standard	Standard
System() Standard Standard <td< td=""><td>System /270 Universal Instruction set</td><td>Standard</td><td>Standard</td><td>Standard</td><td>Standard</td></td<>	System /270 Universal Instruction set	Standard	Standard	Standard	Standard
Console audiole alarm Standard Standard Standard Standard Standard Standard No Remote data link Standard	System/570 Universal instruction set	Standaru	Standard		Standard
Integrated console printer No No No No No No No No No Remote console Standard Standard Standard Standard Standard Standard Standard Standard Standard Console file Standard Program event recording Standard Standard Standard Standard Standard Standard YrVM/SA VM/SA	Console audible alarm	Standard	Standard	Standard	Standard
Light pen No	Integrated console printer	No	No	No	No
Remote console Standard	Light pen	No	No	No	No
Remote data link Standard <	Remote console	Standard	Standard	Standard	Standard
Console file CPU activity monitorStandard OptionalStandard OptionalStandard OptionalStandard OptionalStandard OptionalStandard OptionalConsole file CPU activity monitorStandardStandardStandardStandardStandardStandardProgram event recording Virtual machine assistStandardStandardStandardStandardStandardStandardVITUal machine assistVM/SAVM/SAVM/SAVM/SAVM/SAVM/SAITHER FEATURES & OMMENTSAir cooled; two-byte channel interface optionalAir cooled; 470 accelerator; two-byte channel interface optionalAir cooled; 470 accelerator; two-byte channel interface optionalAir cooled; 470 accelerator; two-byte channel interface optionalAir cooled; 470 accelerator; two-byte channel interface optionalAir cooled; 470 accelerator; two-byte channel interface optionalAir cooled; 470 accelerator; two-byte channel interfaceAir cooled; 470 accelerato	Remote data link	Standard	Standard	Standard	Standard
CPU activity monitor Optional Optional Optional Optional Optional Standard VM/SA VM/SA VM/SA Air cooled; two-byte channel interface optional Image: Standard Standard Standard Standard </td <td>Console file</td> <td>Standard</td> <td>Standard</td> <td>Standard</td> <td>Standard</td>	Console file	Standard	Standard	Standard	Standard
Extended control mode Program event recording Virtual machine assist VM/SA VTHER FEATURES & OMMENTS OMMENTS OMMENTS VM/SA VM/SA VM/SA VM/SA VM/SA VM/SA VM/SA VM/SA VM/SA Air cooled; two-byte channel interface optional VM/SA Air cooled; two-byte channel interface optional VM/SA Air cooled; 470 accelerator; two-byte channel interface optional	CPU activity monitor	Optional	Optional	Optional	Optional
Program event recording Virtual machine assist VIM/SA THER FEATURES & OMMENTS Air cooled; two-byte channel interface optional Air cooled; two-byte channel interface optional Standard VM/SA Air cooled; 470 accelerator; two-byte channel interface optional Air cooled; 470 accelerator; two-byte channel interface optional Air cooled; 470 accelerator; two-byte channel interface optional Air cooled; 470 accelerator; two-byte channel interface optional	Extended central mode	Standard	Standard	Standard	Standard
Virtual machine assist Virtual machine assist VI/SA	Decrease event recording	Standard	Standard	Chan dand	Chandand
Air cooled; two-byte channel interface optional Air cooled; 470 accelerator; two-byte channel interface optional Air cooled; 470 accelerator; 470 extended performance accelerator; two-byte channel interface optional Air cooled; 470 accelerator; 470 extended performance accelerator; two-byte channel interface optional Air cooled; 470 accelerator; 470 extended performance accelerator; two-byte channel interface optional Air cooled; 470 accelerator; 470 extended performance accelerator; two-byte channel interface optional Air cooled; 470 accelerator; 470 extended performance accelerator; two-byte channel interface optional Air cooled; 470 accelerator; 470 extended performance accelerator; two-byte channel interface optional Air cooled; 470 accelerator; 470 extended performance accelerator; two-byte channel interface optional Air cooled; 470 accelerator; 470 extended performance accelerator; 470 ex	Virtual machine assist	VM/SA	VM/SA	VM/SA	VM/SA
Air cooled; two-byte channel interface optional Air cooled; two-byte channel interface optional Air cooled; two-byte channel interface optional Air cooled; two-byte channel interface optional Air cooled; two-byte channel interface optional Air cooled; two-byte channel i					
COMMENTS channel interface optional two-byte channel interface optional two-byte channel interface optional two-byte channel interface optional optional two-byte channel interface optional optional two-byte channel interface optional opt	OTHER FEATURES &	Air cooled; two-byte	Air cooled; 470 accelerator;	Air cooled; 470 accelerator;	Air cooled; 470 accelerat
optional optional accelerator; two-byte optional channel interface optional	COMMENTS	channel interface	two-byte channel interface	470 extended performance	two-byte channel interfact
channel interface optional		optional	optional	accelerator: two-byte	optional
			-	channel interface ontional	1

70C-010-45i Computers

All About Plug-Compatible Mainframes

	Amdahl 470V/7A	Amdahl 470V/7B	Amdahi 470V/7C	MODEL
29	29	29	29	PROCESSOR PERFORMANCE Machine cycle time, nanoseconds
IBM 3033U	IBM 3033N	IBM 3032	IBM 3033S	Relative performance*
1 1	10 to 11	14 to 16	1 1	Performance of
IBM 3083B	-	IBM 3083E		To
1.0 to 1.1		0.9 to 1.0	<u> </u>	Performance of
470V/8	470V/7	470V/7A	470V/7B	Field upgradable to
				MAIN STORAGE
Dynamic NiviOS		Dynamic NIVIUS	Dynamic NIVIOS	Storage type Checking
Yes	Yes	Yes	Yes	Parity
Yes	Yes	Yes	Yes	Error detection & correction
			1	No. of check bits per byte
320	320	320	320	Read cycle, nanoseconds
320	320	320	320	Write cycle, nanoseconds
4	4	4	4	Bytes fetched per cycle
22M	18M	8M 22M	16M	Minimum capacity, bytes
321VI 4M	321VI 4M	AM		Maximum capacity, bytes
Yes	Yes	Yes	Yes	Interleaving
8	8	8	8	Minimum number of ways
16	16	16	16	Maximum number of ways
Yes	Yes	Yes	Yes	BUFFER (CACHE) STORAGE
Bipolar RAM	Bipolar RAM	Bipolar RAM	Bipolar RAM	Storage type
58	158	58	58	Cycle time, nanoseconds
ч 32К	32K	32K	32K	Minimum canacity bytes
32К	32K	32K	32K	Maximum capacity, bytes
32 maximum	32 maximum	32 maximum		I/O CHANNELS
8	8	8	8	Selector channels standard
24	24	24	8	Selector channels optional
8	8	8	8	Block multiplexers standard
24	8	8	8	Block multiplexers optional Byte multiplexers standard
24	24	24	8	Byte multiplexers optional
				Subchannels per channel
256	256	256	256	On a block multiplexer
256	256	256	256	On a byte multiplexer
250 Ves	250	256	256	Un a selector
1 65	165	165	165	Maximum channel data rates
2M	2M	2M	2M	Block multiplexer, bytes/sec.
110K	110K	110K	110K	Byte multiplexer, bytes/sec.
2M	2M	2M	2M	Selector channel, bytes/sec.
18M	18M	18M	18M	Aggregate data rate, bytes/sec.
Yes	Yes	Yes	Yes	Data Streaming
NI / A		N/A	N/A	CONTROL STORAGE
-	<u> </u>			Access time, nanoseconds
	<u> </u>	_	_	Word size, bits
	<u> </u>	<u> </u>) —	Minimum number of words
)	<u> </u>	 —	Maximum number of words
	-	-	-	Control storage usage
\$1 700 000	\$1 375 000	\$1 225 000	\$1 150 000	PRICING & AVAILABILITY
¥1,700,000 Yes	Yes	Yes	Yes	Lease terms offered
Yes	Yes	Yes	Yes	Vendor's
-				Third party
\$65,310/mo. (4-yr.)	\$60,245/mo. (4-yr.)	\$54,285/mo. (4-yr.)	\$52,150/mo. (4-yr.)	Lease of CPU with min. memory (1-yr.
4MB	4MB	4MB	4MB	Memory increment size
3 150,000 Ves	150,000 Voc	150,000	\$ 150,000 Vec	Memory increment purchase
				Prime time
	<u> </u>		_	Additional hours
\$11,670/mo.	\$11,440/mo.	\$11,140/mo.	\$9,550/mmo.	24 hour Other plans
		_		
Amdahi	Amdahi	Amdahi	Amdahi	Manufacturer
Amadahi	A	1 A man al a la la		

WODEL	Amdahl 470V/8	Amdahl 5840	Amdahl 5850	Amdahl 5860
SYSTEM PARAMETERS				
Date of introduction	10/78	2nd Quarter 1983	2nd Quarter 1983	11/80
Date of first delivery	9/79	4th Quarter 1983	3rd Quarter 1983	3rd Quarter 1982
Number installed to date	182			20
	102			
Production status	Not in new production	Active	Active	Active
Operating systems	No.	Vee	Vaa	Vac
DUS/VS	Yes	res	Yes	res Mar
DOS/VSE	Yes	Yes	Yes	Yes
OS/VS1	Yes	Yes	Yes	Yes
SVS	Yes	Yes	Yes	Yes
MVS	Yes	Yes	Yes	Yes
MVS/XA	Yes	Yes	Yes	Yes
VM/370	Yes	Yes	Yes	Yes
VM/SP	Yes	Yes	Yes	Yes
Others	ACP, MVS/SP, MFT, MVT	ACP, MVS/SP, MFT, MVT	ACP, MVS/SP, MFT, MVT	ACP, MVS/SP
Virtual starses conchility	Standard	Standard	Standard	Standard
virtual storage capability	Standard	Standard	Standard	
Processor arrangements				
Uniprocessor	Yes	Yes	Yes	res
Attached processor	1			1-
Front end to		<u> </u>		
Back end to			[1
Multiprocessor	1—]	-	
Minimum in complex		·	I	
Maximum in complex				<u> </u>
Clock comparator	Standard	Standard	Standard	Standard
Clock comparator	Standard	Standard	Standard	Standard
CFU timer	Standard	Standard	Standard	Standard
Control registers	Standard	Standard	Standard	Standard
CPU one-level addressing	Standard	Standard	Standard	Standard
Doubleword buffer	Standard	Standard	Standard	Standard
Interval timer	Standard	Standard	Standard	Standard
Machine check handling	Standard	Standard	Standard	Standard
Multiple bus architecture	Standard	Standard	Standard	Standard
Storage protection	Standard	Standard	Standard	Standard
Time-of-day clock	Standard	Standard	Standard	Standard
Channel command rates	Standard	Standard	Standard	Standard
Charmel indiana addressing	Standard	Standard	Standard	Standard
Channel Indirect addressing	Standard	Standard	Standard	Standard
Byte oriented operand feature	Standard	Standard	Standard	Standard
Extended precision floating point	Standard	Standard	Standard	Standard
High speed floating point	Standard	Standard	Standard	Standard
System/370 Universal Instruction set	Standard	Standard	Standard	Standard
Console audible alarm	Standard	Standard	Standard	Standard
Integrated console printer	No	No	No	No
Light pen	No	No	No	No
Remote console	Standard	Standard	Standard	Standard
Remote data link	Standard	Standard	Standard	Standard
Consola file	Standard	Standard	Standard	Standard
	Optional	Standard	Standard	Standard
CFU activity monitor		Standard	Standard	Standard
Extended control mode	Standard	Standard	Siandard	
Program event recording	Standard	Standard	Standard	Standard
Virtual machine assist	VM/SA	Standard	Standard	VM/SA
OTHER FEATURES &	Air cooled; two-byte			Distributed microcode;
COMMENTS	channel interface optional			Macrocode in all models

Amdahl 470V/8	Amdahi 5840	Amdahl 5850	Amdahl 5860	MODEL
••				PROCESSOR PERFORMANCE
29	23.25	23.25	23.25	Machine cycle time, nanoseconds
BM 3033U		<u> </u>	IBM 3081D	
1.3			1.3	Performance of
IBM 3083J			<u> </u>	То
0.9				Performance of
	1		5870, 5880	Field upgradable to
	1			
				MAIN STORAGE
Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Storage type
Vec	Ves	Vas	Vec	Checking
Yes	Yes	Yes	Yes	Error detection & correction
1	Yes	Yes	1	No. of check bits per byte
	1	1		No. of check bits per word
320	280	280	280	Read cycle, nanoseconds
320	280	280	280	Write cycle, nanoseconds
- 8M	16M	16M	16M	Minimum capacity, bytes
32M	32M	32M	64M	Maximum capacity, bytes
4M	8M	8M	8M	Increment size, bytes
Yes	Yes	Yes	Yes	Interleaving
ძ 16	16	16	16	Minimum number of ways
10		סי	סו	Waximum number of ways
Yes			Yes	BUFFER (CACHE) STORAGE
Bipolar RAM	Bipolar RAM	Bipolar RAM	Two Bipolar RAMs	Storage type
52	<u> </u>	<u> </u>		Cycle time, nanoseconds
4	8	8	8	Bytes fetched per cycle
54K	2X32K	2X32K	2 x 32K	Minimum capacity, bytes
04K	2X32K	2X32K	2 x 32K	Maximum capacity, bytes
				L/O CHANNELS
12	<u> </u>	<u> </u>		Selector channels standard
24				Selector channels optional
12	14 or 15**	14 or 15**	14 or 15**	Block multiplexers standard
24	1.07.2**	1	1	Block multiplexers optional
24	1 or 2			Byte multiplexers standard
				Subchannels per channel
256	256	256	256	On a block multiplexer
256	256	256	256	On a byte multiplexer
256 Mar				On a selector
Yes	Ves	Ves	Yes	Channel to channel adapter
2M	6M	6M	6M	Block multiplexer bytes/sec
110K	200K	200K	200K	Byte multiplexer, bytes/sec.
2M		<u> </u>		Selector channel, bytes/sec.
21M	50-80M	50-80M	50-80M	Aggregate data rate, bytes/sec.
res	res	res	Yes	Data Streaming
				CONTROL STORAGE
N/A	4K RAM	4K RAM	4K RAM	Storage type
	7.5	7.5	7.5	Access time, nanoseconds
	Variable	Variable	Variable	Word size, bits
	Variable	Variable	Variable	Minimum number of words
	Variable	Variable	Variable	Maximum number of words
			VandDie	Control stolage usage
				PRICING & AVAILABILITY
\$1,925,000	\$2,000,000	\$2,350,000	\$2,700,000	Purchase of CPU with min. memory
Yes	Yes	Yes	Yes	Lease terms offered
Yes	Yes	Yes	Yes	Vendor's
	\$71.298 (4-yr.)	\$80,995 (4-yr)	\$100 541/mo	Lease of CPI with min memory (1 vr.)
4MB	8MB	8MB	8MB	Memory increment size
\$150,000	\$180,000	\$180,000	\$180,000	Memory increment purchase
Yes	Yes	Yes	Yes	Vendor offered maintenance
		·		Prime time
				Additional hours
⊅1∠, IOU	φο,200/m0.	φο,500/m0.	ຈອ,850/mo. (4-yr.)	24 hour Other plans
Amdahl	Amdahi	Amdahl	Amdahl	Manufacturer
Amdahl	Amdahl	Amdahl	Amdahl	Vendor

MODEL	Amdahl 5870	Amdahl 5880	Cambex 1636-1	Cambex 1636-10
SYSTEM PARAMETERS	1			
Date of introduction	10/81	11/80	August 1980	Jan. 1983
Date of first delivery	4th Quarter 1983	4th Quarter 1983	4th Quarter 1980	2nd Quarter 1983
Number installed to date				Proprietary
Production status	Active	Active	Not in new production	Active
Operating systems				
DOS/VS	Yes	Yes	Yes	Yes
DOS/VSE	Yes	Yes	Yes	Yes
0S/VS1	Yes	Yes	Yes	Yes
SVS	Ves	Yes	Yes	Yes
MVS	Voc	Vos	No	Ves
	Vee	Ves	140	103
	res	Yes	No.	No. 1
VM/370	Yes	Yes	Yes	Yes
VM/SP	Yes	Yes	Yes	Yes
Others	ACP, MVS/SP	ACP, MVS/SP	ACP	MVS/SP
PROCESSING FEATURES				
Virtual storage capability	Standard	Standard	Standard	Standard
Processor arrangements				
Uninrocessor	No	No	Yes	Yes
Attached pressor				
Front and to		1		
Front end to		1-		
Back end to			<u> </u>	
Multiprocessor	Yes	Yes		—
Minimum in complex	2	2	—	
Maximum in complex	2	2	<u> </u>	<u> </u>
Clock comparator	Standard	Standard	Standard	Standard
CPU timer	Standard	Standard	Standard	Standard
Control registers	Standard	Standard	Standard	Standard
CPU one-level addressing	Standard	Standard	Standard	Standard
Doubleword buffer	Standard	Standard	Standard	Standard
Interval timer	Standard	Standard	Standard	Standard
Mashina ahash handlina	Standard	Standard	Standard	Standard
Wachine check handling	Standard	Standard	Standard	Stanuaru
Multiple bus architecture	Standard	Standard		NO
Storage protection	Standard	Standard	Standard	Standard
Time-of-day clock	Standard	Standard	Standard	Standard
Channel command retry	Standard	Standard	Standard	Standard
Channel indirect addressing	Standard	Standard	Standard	Standard
Byte oriented operand feature	Standard	Standard	Standard	Standard
Extended precision floating point	Standard	Standard	Standard	Standard
High speed floating point	Standard	Standard	Standard	Standard
System/370 Universal Instruction set	Standard	Standard	Standard	Standard
Concolo audible alarm	Standard	Standard	Standard	Standard
	Stanuaru		Ontional	Ontional
Integrated console printer	No	No	No	No
Light pen		NO Chandra t		Ontional
nemote console	Standard	Standard	Optional	Optional
Remote data link	Standard	Standard	Optional	Optional
Console file	Standard	Standard	Standard	Standard
CPU activity monitor	Standard	Standard	No	No
Extended control mode	Standard	Standard	Standard	Standard
Program event recording	Standard	Standard	Standard	Standard
Virtual machine assist	VM/SA	VM/SA	Standard	Standard
OTHER FEATURES &	See 5860 Comments	See 5860 Comments	Formerly Cambridge	
COMMENTS			Memories; 1636 upgraded from 1638	
				4

Amdahl 5870	Amdahl 5880	Cambex 1636-1	Cambex 1636-10	MODEL
22.25	22.25	50	50	PROCESSOR PERFORMANCE
23.25	23.25	50	50	Relative performance*
BM 3081D	IBM 3081D	IBM 4331-2	IBM 4341-10	То
2.2	2.3	1.1 to 1.3	0.9-1.1	Performance of
	-		-	То
_			_	Performance of
5880	_	Cambex 1641	CBX 1641-11	Field upgradable to
	ļ			MAIN STORAGE
Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Storage type
1	No			Checking
res (es	Yes	Yes	Yes	Fror detection & correction
1	1.0	-		No. of check bits per byte
				No. of check bits per word
280	280	400	400	Write cycle, nanoseconds
3	8	8	16	Bytes fetched per cycle
16M	32M	1M	1M	Minimum capacity, bytes
241VI BM	8M	1M	1M	Maximum capacity, bytes
Yes	Yes	No	No	Interleaving
16	16]—	Minimum number of ways
l0	16	-	-	Maximum number of ways
Yes	Yes	No	Yes	BUFFER (CACHE) STORAGE
Two Bipolar RAMs	Two Bipolar RAMs	-	Bipolar RAM	Storage type
			100	Cycle time, nanoseconds
, 4 x 32K	4 x 32K		8K	Minimum capacity, bytes
4 x 32K	4 x 32K		8K	Maximum capacity, bytes
	<u> </u>			Selector channels standard
		_		Selector channels optional
14 or 15**	28 to 30	2	2	Block multiplexers standard
	2 to 4	2	2	Block multiplexers optional Byte multiplexers standard
		o	ò	Byte multiplexers optional
050	050	050		Subchannels per channel
256	256	256	256	On a block multiplexer
_				On a selector
Yes	Yes	Yes	Yes	Channel to channel adapter
SN.4	614	1.96M	1 9614	Maximum channel data rates
200K	200K	50K	50K	Block multiplexer, bytes/sec. Byte multiplexer, bytes/sec.
_				Selector channel, bytes/sec.
50-80M	50-80M	11M	11M	Aggregate data rate, bytes/sec.
res	Tes	INO	NO	Data Streaming
				CONTROL STORAGE
4K RAM 75	4K RAM 7 5	Bipolar RAM	Bipolar RAM	Storage type
Variable	Variable	36	36	Word size, bits
Variable	Variable	72K	72K	Minimum number of words
Variable Variable	Variable	144K	144K	Maximum number of words
		erating system assist	operating system assist	Control storage usage
				PRICING & AVAILABILITY
\$4,500,000 Ves	\$5,300,000 (32M memory)	\$95,000	\$98,500	Purchase of CPU with min. memory
Yes	Yes	Yes	Yes	Lease terms offered Vendor's
		Yes	Yes	Third party
6168,874/mo. (4-yr.)	\$197,415/mo. (4-yr.)	Contact vendor	Contact vendor	Lease of CPU with min. memory (1-yr.)
5180.000	\$180.000	\$15.000	1MB \$9,000	Memory increment size
res	Yes	Yes	Yes	Vendor offered maintenance
	 	\$445/mo.	\$750/mo.	Prime time
	\$18 715/mg	Yes	Yes	Additional hours
		Third party is available	Third party available	Other plans
	1			
			I Camela au	
Amdahi Amdahi	Amdahl	Cambex	Cambex	Manufacturer

	Cambex 1641-1	Cambex 1641-11	Cambex 1651-1	IPL 4436
SYSTEM PARAMETERS				
Date of introduction	August 1980	Jan. 1983	August 1980	10/80
Date of first delivery	4th Quarter 1980	3rd Quarter 1983	3rd Quarter 1981	Ath Quarter 1980
Number installed to date		Proprietary		Prop. Info.*
Production status	Active	Active	Active	Active
Operating systems				
DOS/VS	Yes	Yes	Yes	Yes
DOGIVEE	Ves	Vee	Vec	Vee
00/03/032	Tes .	Tes No.	res V	res
05/051	res	res	res	tes
SVS	Yes	Yes	Yes	Yes
MVS	No	Yes	Yes	Yes
MVS/XA				Yes
VM/370	Yes	Yes	Yes	Yes
VM/SP	Yes	Yes	Yes	Yes
Others	ACP	MVS/SP	ACP	MVS/SP
PROCESSING EEATURES				
Virtual storage canability	Standard	Standard	Standard	Standard
Virtual Storage Capability		Standard		Stanuaru
rocessor arrangements		No.		
Uniprocessor	res	res	res	res
Attached processor	-	1		
Front end to	1		I—	
Back end to	<u> </u>	<u> </u>		<u> </u>
Multiprocessor			 _	
Minimum in complex	<u> </u>			
Maximum in complex		_		
Clock comparator	Standard	Standard	Standard	Standard
CPU timer	Standard	Standard	Standard	Standard
	Standard	Standard	Standard	Standard
Control registers	Standard	Stariuaru	Standard	Standard
CPU one-level addressing	Standard	Standard	Standard	Standard
Doubleword buffer	Standard	Standard	Standard	Standard
Interval timer	Standard	Standard	Standard	Standard
Machine check handling	Standard	Standard	Standard	Standard
Multiple bus architecture	No	No	No	Standard
Storage protection	Standard	Standard	Standard	Standard
Time-of-day clock	Standard	Standard	Standard	Standard
Channel command rates	Standard	Standard	Standard	Standard
	Standard	Standard	Stanuard	Stanuaru
Channel indirect addressing	Standard	Standard	Standard	Standard
Byte oriented operand feature	Standard	Standard	Standard	Standard
Extended precision floating point	Standard	Standard	Standard	Standard
High speed floating point	Standard	Standard	Standard	No
System/370 Universal Instruction set	Standard	Standard	Standard	Standard
Console audible alarm	Standard	Standard	Standard	Standard
Integrated console printer	Optional	Optional	Optional	Optional
Light pen	No	No	No	No
Bemote console	Optional	Optional	Optional	No
Remete data list	Optional	Optional	Optional	Standard
		Optional	Optional	Standard
Console file	Standard	Standard	Standard	Standard
CPU activity monitor	No	No	No	No
Extended control mode	Standard	Standard	Standard	Standard
Program event recording	Standard	Standard	Standard	Standard
Virtual machine assist	Standard	Standard	Standard	Standard
OTHER FEATURES &	1641 upgraded from 1636		1651 available on field	*Over 400 systems, all
COMMENTS			upgrade basis only	models, installed worldwide

Cambex 1641-1	Cambex 1641-11	Cambex 1651-1	IPL 4436	MODEL
				PROCESSOR PERFORMANCE
50	50	50	50	Machine cycle time, nanoseconds Relative performance*
IBM 4341-1	IBM 4341-11	IBM 4341-2	IBM 4331-2	То
0.9 to 1.1	0.9-1.1	0.9 to 1.1	1.50	Performance of
	-	-	-	То
_		_		Performance of
Cambex 1651	-	-	IPL 4443	Field upgradable to
Dunamia NMOS	Durannia MMOC	Dunamia NMOC	Dunamia NMOC	MAIN STORAGE
				Checking
 Xoc			Yes	Parity Error detection & correction
—	—		1	No. of check bits per byte
400	400	-	4	No. of check bits per word
400	400	400	500	Write cycle, nanoseconds
16	16	16	8	Bytes fetched per cycle
2M	2M	2M	1 M	Minimum capacity, bytes
16M	16M	16M	8M	Maximum capacity, bytes
No	No	No		Increment size, bytes
				Minimum number of ways
—	-	<u> </u>		Maximum number of ways
Yes	Yes	Yes	No	BUFFER (CACHE) STORAGE
Bipolar RAM	Bipolar RAM	Bipolar RAM		Storage type
100	100	100	<u> </u>	Cycle time, nanoseconds
8K	10	ID ISK		Bytes fetched per cycle
8K	вк	вк	<u> </u>	Maximum capacity, bytes
				I/O CHANNELS
—		<u> </u>		Selector channels standard
	-	-		Selector channels optional
2	4	4	2	Block multiplexers standard
1	1		1	Byte multiplexers standard
0	0	0		Byte multiplexers optional
	0.50	050		Subchannels per channel
256	256	256	256	On a block multiplexer
	-		250	On a selector
Yes	Yes	Yes	Yes	Channel to channel adapter
				Maximum channel data rates
1.86M	1.86M	1.86M	2M	Block multiplexer, bytes/sec.
50K	50K	50K	180K	Byte multiplexer, bytes/sec.
11M	11M	11M	10M	Aggregate data rate, bytes/sec.
No	No	No	Yes	Data Streaming
				CONTROL STORAGE
Bipolar RAM	Bipolar RAM	Bipolar RAM	ECL	Storage type
25	25	25	20	Access time, nanoseconds
36	36	36	36	Word size, bits
144K	144K	144K	32K	Maximum number of words
Instruction microcode,	Instruction microcode,	Instruction microcode,	Instruction microcode,	Control storage usage
operating system assist	operating system assist	operating system assist	operating system assist	
\$150,000	\$170,000	Upgrade only, see below	\$128,000	PRICING & AVAILABILITY Purchase of CPU with min. memory
Yes		Yes	Yes	Lease terms offered
Yes	Yes	Yes	Yes	Vendor's
res Contact Vendor	Yes Contact vendor	res Contact Vendor	Yes \$5,440,24/mo	I hird party
1MB	2MB	1MB	1 or 2MB	Memory increment size
\$15,000	\$9,000/M	\$15,000	\$7,500	Memory increment purchase
Yes	Yes	Yes	Yes	Vendor offered maintenance
⊅/50/mo. Vos	\$925/mo.	(\$925/mo.	\$485/mo.	Prime time
Yes	Yes	Yes	Yes	Additional hours
	Third party available	Third party available	Yes	Other plans
Third party available	, , ,			
Third party available Cambex	Cambex	Cambex	IPL	Manufacturer
Third party available Cambex Cambex	Cambex Cambex	Cambex Cambex	IPL IPL	Manufacturer Vendor

<u>с ж</u>

ter 1980 33 • Pr • A Yi Yi Yi Yi Yi Yi Yi Yi Yi Yi Yi Yi Yi	11/81 3rd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes WVS/SP Standard Standard Standard	10/80 3rd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes MVS/SP Standard Yes — —	 2nd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes Yes MVSSP Standard Yes
ter 1980 31 * A Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	11/81 Brd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes WVS/SP Standard Standard Standard	10/80 3rd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes MVS/SP Standard Yes — —	 2nd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes Yes MVSSP Standard Yes
ter 1980 31 * A Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	11/81 3rd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes Yes MVS/SP Standard Standard Standard	10/80 3rd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes MVS/SP Standard Yes 	 2nd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes Yes MVSSP Standard Yes
ter 1980 3 .* A Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Standard Standard	3rd Quarter 1980 Prop. Info.* Active Yes MVS/SP Standard Yes —	2nd Quarter 1980 Prop. Info.* Active Yes Yes Yes Yes Yes Yes Yes MVSSP Standard Yes
	Active Active Yes Yes Yes Yes Yes Yes Yes Yes MVS/SP Standard Standard Standard	Prop. Info.* Active Yes Yes Yes Yes Yes Yes Yes Yes MVS/SP Standard Yes — — —	Prop. Info.* Active Yes Yes Yes Yes Yes Yes Yes MVSSP Standard Yes
- - - - - - - - - - - - - - - - - - -	Prop. Into.* Active Yes Yes Yes Yes Yes Yes Yes MVS/SP Standard Standard Standard	Prop. Into.* Active Yes	Prop. Into.* Active Yes Yes Yes Yes Yes Yes MVSSP Standard Yes
A Yi Yi Yi Yi Yi M M Si Si Si Si Si Si Si Si Si Si Si Si Si	Active Yes Yes Yes Yes Yes Yes MVS/SP Standard Standard Standard	Active Yes Yes Yes Yes Yes Yes MVS/SP Standard Yes — — —	Active Yes Yes Yes Yes Yes Yes MVSSP Standard Yes
Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Yes Yes Yes Yes Yes Yes MVS/SP Standard Standard Standard	Yes Yes Yes Yes Yes Yes MVS/SP Standard Yes — — —	Yes Yes Yes Yes Yes Yes Yes MVSSP Standard Yes
Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Yes Yes Yes Yes Yes Yes WVS/SP Standard Standard Standard	Yes Yes Yes Yes Yes Yes MVS/SP Standard Yes — — —	Yes Yes Yes Yes Yes Yes MVSSP Standard Yes —
Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Yes Yes Yes Yes Yes Yes Yes MVS/SP Standard Yes	Yes Yes Yes Yes Yes MVS/SP Standard Yes 	Yes Yes Yes Yes Yes Yes MVSSP Standard Yes —
Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Yes Yes Yes Yes Yes Yes MVS/SP Standard Yes 	Yes Yes Yes Yes Yes MVS/SP Standard Yes 	Yes Yes Yes Yes MVSSP Standard Yes —
Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y Y	Yes Yes Yes Yes Ves VVS/SP Standard Standard Standard	Yes Yes Yes Yes MVS/SP Standard Yes 	Yes Yes Yes Yes MVSSP Standard Yes — —
Y Y Y Y M M S S S S S S S S S S S S S S	Yes Yes Yes Yes Yes MVS/SP Standard Yes 	Yes Yes Yes MVS/SP Standard Yes 	Yes Yes Yes Yes MVSSP Standard Yes — —
SI SI SI SI SI SI SI SI SI SI SI SI SI S	res Yes Yes Yes MVS/SP Standard Yes 	Yes Yes Yes MVS/SP Standard Yes 	Yes Yes Yes MVSSP Standard Yes —
Si Si Si Si Si Si Si Si Si Si Si Si Si	Yes Yes VVS/SP Standard Yes — — — — — — — — — Standard Standard	Yes Yes MVS/SP Standard Yes 	Yes Yes MVSSP Standard Yes —
Y Y M Si Y - - - Si Si Si Si Si Si Si Si Si	Yes Yes MVS/SP Standard Yes 	Yes Yes MVS/SP Standard Yes 	Yes Yes MVSSP Standard Yes — —
Y. M Si - - - Si Si Si Si Si Si Si Si Si	Yes MVS/SP Standard Yes 	Yes MVS/SP Standard Yes 	Yes MVSSP Standard Yes — —
M Sf 	VVS/SP Standard Yes 	MVS/SP Standard Yes 	MVSSP Standard Yes — —
SI Y. - - - SI SI SI SI SI SI SI SI SI	Standard Yes — — — — — Standard Standard	Standard Yes 	Standard Yes — —
Si Y. - - - - - - - - - - - - - - - - - -	Standard Yes 	Standard Yes 	Standard Yes — — —
51 Y. - - - - - - - - - - - - - - - - - -	Yes 	Standard Yes 	Yes — — —
Y - - - - - - - - - - - - - - - - - - -	Yes 	Yes 	Yes
Y 	Yes 	Yes — — — — — —	Yes
	Standard		
	 Standard Standard		
	Standard		—
	Standard		1-
		_	
	— — Standard Standard		
	 Standard Standard	-	—
Si Si Si Si Si	Standard Standard		1—
51 51 51 51	Standard	Standard	Standard
S1 S1 S1		Standard	Standard
SI	Standard	Standard	Standard
Si	Standard	Standard	Standard
St	Stondard	Standard	Standard Standard
	standard	Standard	Standard
S1	Standard	Standard	Standard
St	Standard	Standard	Standard
St	Standard	Standard	Standard
5	Standard	Standard	Standard
	Standard	Standard	Standard
30	Standard	Standard	Standard
51	standard	Standard	Standard
St	Standard	Standard	Standard
St	Standard	Standard	Standard
St	Standard	Standard	Standard
N	No	Vec	Ves
	Standard	Standard	Standard
31	Standard	Standard	Standard
St	standard	Standard	Standard
0	Optional	Optional	Optional
N	No	No	No
N	No	No	No
St	Standard	Standard	Standard
6	Standard	Standard	Standard
	No	No	No
		Chan dand	Chan doesd
St	standard	Standard	Standard
St	Standard	Standard	Standard
St	Standard	Standard	Standard
		Standard No Standard Standard Optional No Standard Standard Standard Standard Standard	StandardStandardNoYesStandardStandardStandardStandardOptionalOptionalNoNoNoNoStandard

IPL 4443	IPL 4445	IPL 4446	IPL 4460	MODEL
50	50	50	50	PROCESSOR PERFORMANCE Machine cycle time, nanoseconds
IBM 4341-1	IBM 4341-11	IBM 4341-2	IBM 4341-12	Relative performance*
4.00				
1.00 —	1.00	1.00	1.00 13n 4361-5	Performance of To
			1 20	Borformonoo of
IPL 4445	IPL 4446	IPL 4460	IPL 4480	Field upgradable to
				MAIN STORAGE
Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Storage type
Yes	Yes	Yes	Yes	Parity
Yes	Yes	Yes	Yes	Error detection & correction
4	4	4	4	No. of check bits per byte No. of check bits per word
500	500	500	400	Read cycle, nanoseconds
8	8	8	8	Write cycle, nanoseconds Bytes fetched per cycle
2M	2M	2M	2M	Minimum capacity, bytes
8M 2M	18M 2M	16M 2M	16M 2M	Maximum capacity, bytes
No	No	No	No	Interleaving
_			<u> </u>	Minimum number of ways
_				iviaximum number of ways
Yes	Yes	Yes	Yes	BUFFER (CACHE) STORAGE
EUL 100	100	100	100	Storage type Cycle time, nanoseconds
4	8	8	8	Bytes fetched per cycle
вк 8К	8K 8K	16K 16K	24K 24K	Minimum capacity, bytes
				I/O CHANNELS Selector channels standard
	[<u> </u>	Selector channels optional
2	5	5	5	Block multiplexers standard
1	1	1	1	Block multiplexers optional Byte multiplexers standard
—	<u> </u>			Byte multiplexers optional
256	256	256	256	Subchannels per channel On a block multiplexer
256	256	256	256	On a byte multiplexer
— Yes		Yes		On a selector
				Maximum channel data rates
2M 180K	3M	3M	3M	Block multiplexer, bytes/sec.
				Selector channel, bytes/sec.
10M	12M	12M	12M	Aggregate data rate, bytes/sec.
162	162	165	Tes	Data Streaming
ECI	FO	FOI		CONTROL STORAGE
20	20	20	20	Storage type Access time, nanoseconds
36	36	36	36	Word size, bits
16K 32K	16K 32K	16K 32K	16K 32K	Minimum number of words
Instruction microcode,	Instruction microcode,	Instruction microcode,	Instruction microcode,	Control storage usage
operating system assist	operating system assist	operating system assist	operating system assist	
\$165,000	\$215,000	\$240,000	\$265,000	Purchase of CPU with min. memory
Yes	Yes	Yes	Yes	Lease terms offered
Yes	Yes	Yes	Yes	vendor s Third party
\$5,905 24/mo.	\$7,745 24/mo.	\$8,880 24/mo.	\$10,810 24/mo.	Lease of CPU with min. memory (1-yr.)
∠ivib \$7,500	81/18 \$7,500	81/18 187,500	2MB \$7,500	Memory increment size
Yes	Yes	Yes	Yes	Vendor offered maintenance
\$605/mo. Yes	\$780/mo.	\$880/mo.	\$900/mo.	Prime time
Yes	Yes	Yes	Yes	24 hour
Yes	Yes	Yes	Yes	Other plans
IPL	IPL	IPL	IPL	Manufacturer
IPL	IPL	IPL	IPL	Vendor

2/83 hth Quarter 1980 rop. Info.* Active Yes Yes Active Standard	9/82 10/82 — Active Yes Yes Yes Yes Yes Yes ECPS:VSE Standard	8/81 9/81 — Active Yes Yes Yes Yes No Yes Yes Yes 	6/80 6/80 — Active Yes Yes Yes Yes Yes Yes Yes Yes MVS/SP
2/83 Ith Quarter 1980 Prop. Info.* Active /es /es /es /es MVS/SP Standard 	9/82 10/82 — Active Yes Yes Yes Yes Yes Yes ECPS:VSE Standard	8/81 9/81 — Active Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye	6/80 6/80 — Active Yes Yes Yes Yes Yes Yes Yes MVS/SP
Active Ves Ves Ves VVS/SP	Active Yes Yes Yes Yes No Yes Yes ECPS:VSE	Active Yes Yes Yes Yes No Yes Yes 	Active Yes Yes Yes Yes Yes Yes MVS/SP
fes fes fes avS/SP Standard	Yes Yes Yes Yes No Yes Yes ECPS:VSE	Yes Yes Yes Yes No Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes MVS/SP
/es /es /es /IVS/SP Standard	Yes Yes Yes No Yes Yes ECPS:VSE	Yes Yes Yes No Yes Yes 	Yes Yes Yes Yes Yes MVS/SP
res res res res rVS/SP	Yes No Yes Yes ECPS:VSE Standard	Yes No Yes — Standard	Yes Yes Yes MVS/SP
es //VS/SP Standard 	Yes ECPS:VSE Standard	Yes 	Yes MVS/SP
Standard 	Standard	Standard	
—	otanaara		Standard
	Yes	Yes	Vee
-	-		
 /es			
Standard Standard	Standard Standard	Standard Standard	Standard Standard
Standard Standard	Standard Standard	Standard Standard	Standard Standard
Standard Standard	Standard Standard	Standard Standard	Standard Standard
Standard Standard	Standard Standard	Standard Standard	Standard Standard
Standard Standard	Standard Standard	Standard Standard	Standard Standard
Standard Standard	Standard Standard	Standard Standard	Standard Standard
Standard Standard	Standard No	Standard Standard	Standard Standard
/es Standard	Standard Standard	No Standard	No Standard
Standard Optional	No No	Standarad No	Standard No
io Io	Optional Optional	No Optional	No Optional
Standard Standard	Standard Standard	Optional Standard	Optional Standard
lo Standard	Standard Standard	Standard Standard	Standard Standard
Standard Standard	Standard Standard	Standard Standard	Standard Standard
BM compatible computing omplex consisting of two	Optional— ECPS:VSE,	Optional— ECPS:VSE,	Optional— ECPS:VSE,
ndependent processing inits sharing a partitioned lual ported main storage.	ECPS:VS/1, ECPS:VM/370	ECPS:VS/1, ECPS:VM/370	ECPS:VS/1, ECPS:VM/370, ECPS:MVS, ECPS:Co-residency
		Andard Yes - - <	andard Standard Standard - - - - -

IPL 4480	Magnuson M80 Model 20	Magnuson M80 Model 30	Magnuson M80 Model 31	MODEL	
50	100	100	100	PROCESSOR PERFORMANCE Machine cycle time, nanoseconds	
IBM 4381-2	IBM 4321	IBM 4331-1	IBM 4331-2	Relative performance* To	
1.00	1.2	1.5	1.2	Performance of	
IPL 4960	-			То	
1.70	 M80/20		 M80/22	Performance of	
			100/32		
Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	MAIN STORAGE Storage type Checking	
Yes	Yes	Yes	Yes	Parity	
Yes 1	Yes 1	Yes	Yes 1	Error detection & correction	
4	4	4	4	No. of check bits per word	
400	600	600	600	Read cycle, nanoseconds	
500	500	500	500	Write cycle, nanoseconds	
8M	0.5M	0.5M	1M	Minimum capacity, bytes	
16M	8M	8M	8M	Maximum capacity, bytes	
4M	0.5M	0.5M	1M	Increment size, bytes	
No	No	No	No	Interleaving Minimum number of wove	
-		_	<u> </u>	Maximum number of ways	
Yes	No	No	No	BUFFER (CACHE) STORAGE	
ECL		-	1-	Storage type	
100			-	Cycle time, nanoseconds	
° 2 x 24KB				Minimum capacity, bytes	
2 × 24KB		-		Maximum capacity, bytes	
	-			I/O CHANNELS	
-	0	0	0	Selector channels standard	
8	1	1	2	Block multiplexers standard	
	5	5	13	Block multiplexers optional	
2	1	1	1	Byte multiplexers standard	
<u> </u>	5	5	15	Byte multiplexers optional Subchannels per channel	
256	255	255	255	On a block multiplexer	
256	255	255	255	On a byte multiplexer	
	255	255	255	On a selector	
res	Optional	Optional	Optional	Maximum channel data rates	
3M	2M	2M	2M	Block multiplexer, bytes/sec.	
180K	100K	100K	100K	Byte multiplexer, bytes/sec.	
	2M	12M	12M	Selector channel, bytes/sec.	
Yes	No	No	Yes	Data Streaming	
				CONTROL STORAGE	
ECL	Static NMOS	Static NMOS	Static NMOS	Storage type	
20	45	45	45	Access time, nanoseconds	
2 x 16K	16K	16K	16K	Minimum number of words	
2 x 32K	16K	16K	16K	Maximum number of words	
Instruction microcode,	Instruction microcode,	Instruction microcode,	Instruction microcode,	Control storage usage	
operating system assist	assist features	operating system assist	operating system assist	PRICING & AVAILABILITY	
\$520,000	\$59,000	\$76,000 Xos	\$95,000 Ves	Purchase of CPU with min. memory	
Yes	Yes	Yes	Yes	Vendor's	
Yes	Yes	Yes	Yes	Third party	
\$20,170 24/mo.	\$3,075	3170	\$4,970	Lease of CPU with min. memory (1-yr.)	
4MB \$13,000	10.5M	U.5MB	1MB \$10,000	Memory increment size	
Yes	Yes	Yes	Yes	Vendor offered maintenance	
\$1,765/mo.	Yes	Yes	Yes	Prime time	
Yes	Yes	Yes	Yes	Additional hours	
Yes	Yes	Yes	Yes	24 hour	
165	1 55	105	1 63		
IPL IPL	Magnuson	Magnuson	Magnuson	Manufacturer Vonder	
))rL	liviagnuson	iviagnuson	liviagnuson	vendor	

DECEMBER 1983

MODEL	Magnuson M80 Model 32	Magnuson M80 Model 41	Magnuson M80 Model 42	Magnuson M80 Model 43
SYSTEM PARAMETERS				
Date of introduction	3/79	11/81	3/79	3/79
Date of first delivery	5/80	2/82	9/81	9/81
Number installed to date		<u> </u>	<u> </u>	
Production status	Active	Active	Active	Active
Operating systems				
DOS/VS	Yes	Yes	Yes	Yes
DOS/VSF	Yes	Yes	Yes	Yes
	Vee	Vea	Voo	Vee
05/051	res	res	res	Tes
SVS	Yes	Yes	Yes	res
MVS	Yes	Yes	Yes	Yes
MVS/XA	Yes	Yes	Yes	Yes
VM/370	Yes	Yes	Yes	Yes
VM/SP	Yes	Yes	Yes	Yes
Others	MVS/SP	MVS/SP	MVS/SP	MVS/SP
PROCESSING FEATURES				
Virtual storage capability	Standard	Standard	Standard	Standard
Processor arrangements	1		1	
Liniprocessor	Yes	Yes	Yes	Yes
Attached processor				
Attached processor	1-	<u> </u>		
Front end to	1—		I—	
Back end to	1-		-	1
Multiprocessor				<u> </u>
Minimum in complex	1	—	<u> </u>	—
Maximum in complex	<u> </u>	<u> </u>		
Clock comparator	Standard	Standard	Standard	Standard
CPU timer	Standard	Standard	Standard	Standard
Control registers	Standard	Standard	Standard	Standard
CPIL one-lovel addressing	Standard	Standard	Standard	Standard
	Standard	Standard	Standard	Standard
	Standard	Standard	Standard	Standard
interval timer	Standard	Standard	Standard	Standard
wachine check handling	Standard	Standard	Standard	Standard
Multiple bus architecture	Standard	Standard	Standard	Standard
Storage protection	Standard	Standard	Standard	Standard
Time-of-day clock	Standard	Standard	Standard	Standard
Channel command retry	Standard	Standard	Standard	Standard
Channel indirect addressing	Standard	Standard	Standard	Standard
Byte oriented operand feature	Standard	Standard	Standard	Standard
Extended provision floating point	Standard	Standard	Standard	Standard
Extended precision hoating point	Stanuaru	Standard	Nia	Ontinual
High speed floating point	NO	Standard		Optional
System/370 Universal Instruction set	Standard	Standard	Standard	Standard
Console audible alarm	Standard	Standard	Standard	Standard
Integrated console printer	No	No	No	No
Light pen	No	No	No	No
Remote console	Optional	Optional	Optional	Optional
Remote data link	Optional	Optional	Optional	Optional
Console file	Standard	Standard	Standard	Standard
CPLL activity monitor	Standard	Standard	Standard	Standard
Si O activity monitor	Standard	Standard	Standard	Standard
	Standard	Standard	Standard	Standard
Program event recording	Standard	Standard	Standard	Standard
Virtual machine assist	Standard	Standard	Standard	Standard
OTHER FEATURES &	Optional—	Optional	Optional	Optional
COMMENTS	ECPS:VSE,	ECPS:VSE,	ECPS:VSE,	ECPS:VSE,
	ECPS:VS/1	ECPS:MVS.	ECPS:MVS.	ECPS:MVS.
	ECPS:VM/370	ECPS:VM/370	ECPS:VM/370	ECPS:VM/370
	FCPS·MVS			
	ECPS:Co-regidency		1	
	Lor 5.00-residency			

Magnuson M80 Model 32	Magnuson M80 Model 41	Magnuson M80 Model 42	Magnuson M80 Model 43	MODEL
100	50	50	50	PROCESSOR PERFORMANCE Machine cycle time, nanoseconds
IBM 4331-2	IBM 4341-10	IBM 4341-1	IBM 4341-1	Relative performance* To
1.5	1.1	1.1	1.3	Performance of
—				To
	—	 	_	Performance of
M80/41	M80/42	M80/43		Field upgradable to
Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	MAIN STORAGE Storage type Checking
Yes	Yes	Yes	Yes	Parity
1	1	1	1	No. of check bits per byte
4	4	4	4	No. of check bits per word
500	700	700	700	Kead cycle, nanoseconds
8	64	64	64	Bytes fetched per cycle
1 M	2M	2M	2M	Minimum capacity, bytes
8M	16M	16M	16M	Maximum capacity, bytes
No	No	No	No	Increment size, bytes
				Minimum number of ways
<u> </u>		-		Maximum number of ways
Yes	Yes	Yes	Yes	BUFFER (CACHE) STORAGE
Static TTL	Static ECL	Static ECL	Static ECL	Storage type
300	50	50	50	Cycle time, nanoseconds
16K	4 16K	4 32K	4 48K	Bytes fetched per cycle
16К	16K	32K	48K	Maximum capacity, bytes
				I/O CHANNELS
0	0	0	0	Selector channels standard
13	13	13	13	Selector channels optional
13	13	13	13	Block multiplexers standard
1	1	1	1	Byte multiplexers standard
15	15	15	12	Byte multiplexers optional
255	255	255	255	Subchannels per channel
255	255	255	255	On a byte multiplexer
255	255	255	255	On a selector
Optional	Optional	Optional	Optional	Channel to channel adapter
214	204	214	2M	Maximum channel data rates
100K	100K	100K	100K	Block multiplexer, bytes/sec.
2M	3M	ЗМ	3M	Selector channel, bytes/sec.
10M	10M	10M	10M	Aggregate data rate, bytes/sec.
res	Yes	Yes	Yes	Data Streaming
Static NIMOS	Static ECI S	Static ECLS	Statio ECLS	CONTROL STORAGE
45	35	35	35	Access time nanoseconds
32	80	80	80	Word size, bits
16K	8K	8K	вк	Minimum number of words
16K	16K	16K	16K	Maximum number of words
operating system assist	operating system assist	operating system assist	operating system assist	Control storage usage
\$115,000	\$135,000	\$183,000	\$228,000	PRICING & AVAILABILITY Purchase of CPU with min. memory
Yes	Yes	Yes	Yes	Lease terms offered
Yes	Yes	Yes	Yes	Vendor's
Yes \$6 108	Yes \$6 892	Yes \$7 423	Yes \$8 557	I hird party
1МВ	1MB	1MB	1MB	Memory increment size
\$10,000	\$10,000	\$10,000	\$10,000	Memory increment purchase
Yes	Yes	Yes	Yes	Vendor offered maintenance
Yes	Yes	Yes	Yes	Prime time Additional hours
Yes	Yes	Yes	Yes	24 hour
Yes	Yes	Yes	Yes	Other plans
Magnuson	Magnuson	Magnuson	Magnuson	Manufacturer
Magnuson	Magnuson	Magnuson	Magnuson	Vendor
L				

*As rated by the PCM vendor.
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MODEL	NAS AS/5000	NAS AS/5000E	NAS AS/5000N	NAS AS/7000
· · · · · · · · · · · · · · · · · · ·	,			
SYSTEM PARAMETERS				
Date of introduction	1/80	9/80	9/83	1/80
Date of first delivery	1/80	9/80	9/83	2nd Quarter 1980
Number installed to date			-	
Production status	Limited new production	Limited new production	Limited new production	Active
Operating systems				
DOS/VS	Yes	Yes	Yes	Yes
DOS/VSF	Yes	Yes	Yes	Yes
05/1/51	Ves	Yes	Yes	Yes
SV(S	Vec	Vac	Vos	Voc
303	Nee State	Vee	Vee	Vee
WIV5	res	Tes	res	res
MVS/XA	No	No	No	NO
VM/370	Yes	Yes	Yes	Yes
VM/SP	Yes	Yes	Yes	No
Others	MVS/SP	No	-	MVS/SP
PROCESSING FEATURES				2
Virtual storage capability	Standard	Standard	Standard	Standard
Processor arrangements				1
Unincossor	Ves	Vas	Ves	Ves
Attacked and an and a second	105	165	1 63	100
Attached processor		-	<u> </u> —	
Front end to	<u> </u>		-	
Back end to				
Multiprocessor			i—	
Minimum in complex		I		
Maximum in complex				_
Clock comparator	Standard	Standard	Standard	Standard
CPLI timer	Standard	Standard	Standard	Standard
	Standard	Chandand	Standard	Standard
Control registers	Standard	Standard	Standard	Standard
CPU one-level addressing	Standard	Standard	Standard	Standard
Doubleword buffer	Standard	Standard	Standard	Standard
Interval timer	Standard	Standard	Standard	Standard
Machine check handling	Standard	Standard	Standard	Standard
Multiple bus architecture	Standard	Standard	Standard	Standard
Storago protection	Standard	Standard	Standard	Standard
Time of day clock	Standard	Standard	Standard	Standard
Time-of-day clock	Standard			
Channel command retry	Standard	Standard	Standard	Standard
Channel indirect addressing	Standard	Standard	Standard	Standard
Byte oriented operand feature	Standard	Standard	Standard	Standard
Extended precision floating point	Standard	Standard	Standard	Standard
High speed floating point	No	No	No	No
System/370 Universal Instruction set	Standard	Standard	Standard	Standard
Console audible alarm	Standard	Standard	Standard	Standard
late system as a set of a state of a state of a state of a set of a state of	Standard	Ontional	Ontional	Standard
integrated console printer	Standard	Standard	Stondord	Standard
Light pen	Standard	Standard	Standard	Standard
Remote console	Uptional	Optional	Optional	
Remote data link	No	No	No	No
Console file	Standard	Standard	Standard	Standard
CPU activity monitor	Standard	Standard	Standard	Standard
Extended control mode	Standard	Standard	Standard	Standard
Program event recording	Standard	Standard	Standard	Standard
Virtual machine assist	Standard	Standard	Standard	Standard
OTHER FEATURES & COMMENTS				A second service processor console is available as
				an option
	1		1	1

NAS AS/5000	NAS AS/5000E	NAS AS/5000N	NAS AS/7000	MODEL
•••				PROCESSOR PERFORMANCE
92	92	92	72	Machine cycle time, nanoseconds Relative performance*
BM 3031	IBM 4341-2	IBM 4341-1	IBM 3033S	То
.15	1.0	1.2	1.15	Performance of
	_	—	-	То
<u>.</u>				Porformance of
	AS/5000	AS/5000E, AS/5000	AS/7000 DPC	Field upgradable to
				MAIN STORAGE
MOS	NMOS	NMOS	NMOS	Storage type
/	Noo.	Vac	Maa	Checking
res	Yes	Yes	Yes	Firm detection & correction
	1	1	1	No. of check bits per byte
				No. of check bits per word
160 160	460	460	360	Read cycle, nanoseconds
3	8	8	8	Bytes fetched per cycle
2M	2M	2M	4M	Minimum capacity, bytes
3M	8M	8M	16M	Maximum capacity, bytes
	No	No	Yes	Increment size, bytes
_			4	Minimum number of ways
	-		4	Maximum number of ways
Pinelar ECI	Bineler FCI	Binalas ECI	Dinalas COL	BUFFER (CACHE) STORAGE
184	184	184	144	Storage type Cycle time, nanoseconds
3	8	8	8	Bytes fetched per cycle
32K	32K	8K	64K	Minimum capacity, bytes
32K	32K	8K	64K	Maximum capacity, bytes
_	<u> </u>			I/O CHANNELS Selector channels standard
_	<u> </u>			Selector channels optional
4	4	4	6	Block multiplexers standard
1		11	6	Block multiplexers optional
1	1	1	2	Byte multiplexers optional
		2		Subchannels per channel
256	256	256	256	On a block multiplexer
	256	230	256	On a byte multiplexer
Optional	Optional	Optional	Standard	Channel to channel adapter
				Maximum channel data rates
1.86M	1.86M	1.86M	1.5M	Block multiplexer, bytes/sec.
-				Selector channel, bytes/sec.
5.75M	6.75	6.75M	21M	Aggregate data rate, bytes/sec.
No	No	No	Optional	Data Streaming
				CONTROL STORAGE
Sipolar ECL	Bipolar ECL	10 to 20	Bipolar ECL	Storage type
72	72	72	99	Word size, bits
16K	16K	16K	6К	Minimum number of words
I6K	16K	16K	6K	Maximum number of words
operating system assist	operating system assist	operating system assist	Instruction microcode, operating system assist	Control storage usage
\$450,000	\$350,000	\$250,000	\$1,100,000	PRICING & AVAILABILITY Purchase of CPU with min. memory
Yes	Yes	Yes	Yes	Lease terms offered
res	Yes	Yes	Yes	Vendor's
Contact vendor	Contact vendor	Contact vendor	Contact vendor	Lease of CPU with min. memory (1-vr)
2MB	2MB	2MB	2MB	Memory increment size
50,000 Kao	\$50,000	\$50,000	\$100,000	Memory increment purchase
res (es	Yes	Yes	Yes	Vendor offered maintenance Prime time
				Additional hours
3,542/mo. —	\$2,793/mo.	\$2,646/mo.	\$9,280/mo.	24 hour Other plans
146	NAS	NAC	NAC	
IAS	NAS	NAS	NAS	Manufacturer Vendor
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MODEL	NAS AS/7000 DPC	NAS AS/7000N	NAS AS/9000 DPC	NAS AS/9000N
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VOTEM DADANETEDO	-			
YSTEM PARAMETERS	4.00	1/00	0.01	1 /01
Date of introduction	1/80	1/80	9/81	1/81
Date of first delivery	2nd Quarter 1980	2nd Quarter 1980	4th Quarter 1981	4th Quarter 1981
Number installed to date				
Production status	Active	Active	Active	Active
Operating systems				N
DOS/VS	Yes	Yes	No	No
DOS/VSE	Yes	Yes	No	No
OS/VSL	Ves	Yes	No	Ves
SVE	Vec	Vos	No	No
373	Tes Nee	Ves	Vee	Vac
MVS	Yes	Yes	Yes	res
MVS/XA	No	No	No	No
VM/370	Yes	Yes	Yes	Yes
VM/SP	Yes	Yes	Yes	Yes
Others	MVS/SP	MVS/SP	MVS/SP	MVS/SP
	1			
		· · · · ·		
	Chan dand	Chan dand	Eton doud	Stondard
virtual storage capability	Standard	Standard	Standard	Standard
Processor arrangements	:			
Uniprocessor	— .	Yes		Yes
Attached processor		—		
Front end to	<u> </u>			
Back end to				
Multiprocessor	Ves		Yes	
Minimum in complex	2	· · · · · · · · · · · · · · · · ·	2	
Manina in complex	2		2	
iviaximum in complex	2			
Clock comparator	Standard	Standard	Standard	Standard
CPU timer	Standard	Standard	Standard	Standard
Control registers	Standard	Standard	Standard	Standard
CPU one-level addressing	Standard	Standard	Standard	Standard
Doubleword buffer	Standard	Standard	Standard	Standard
Interval timer	Standard	Standard	Standard	Standard
Machine check handling	Standard	Standard	Standard	Standard
Multiple bus architecture	Standard	Standard	Standard	Standard
	Standard	Standard	Standard	Standard
Storage protection	Standard	Standard	Standard	Standard
lime-of-day clock	Standard	Standard	Standard	Standard
Channel command retry	Standard	Standard	Standard	Standard
Channel indirect addressing	Standard	Standard	Standard	Standard
Byte oriented operand feature	Standard	Standard	Standard	Standard
Extended precision floating point	Standard	Standard	Standard	Standard
High speed floating point	No	No	No	No
System/370 Universal Instruction set	Standard	Standard	Standard	Standard
Concolo oudible elerm	Standard	Standard	Standard	Standard
	Standard	Standard	Ontional	Ontional
integrated console printer	Standard	Standard	Optional	Optional
Light pen	Standard	Standard	No	No
Remote console	\$			<u> </u>
Remote data link	No	No	No	No
Console file	Standard	Standard	Standard	Standard
CPU activity monitor	Standard	Standard	Standard	Standard
Extended control mode	Standard	Standard	Standard	Standard
Program event recording	Standard	Standard	Standard	Standard
Virtual machine assist	Standard	Standard	Standard	Standard
THER FEATURES &	Two service processor	A second service processor	Two service processor	A second service process
OMMENTS	consoles are standard; a	console is available as	consoles are standard;	console is available as an
the second second second second	third is optional	an option	two additional consoles	option
	Sec. As a second		are optional	
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	and Barris Maria Maria Maria Maria Maria	transa tara		
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	and Barrier Marine Mari	transa tarian		
	and Barrier Anter Annae Anter Annae Anter Annae Annnae Annae Annae Annae Annae Annae Anna			

AS/7000 DPC	AS/7000N	AS/9000 DPC	AS/9000N	MODEL
72	72	38	48	PROCESSOR PERFORMANCE Machine cycle time, nanoseconds
IBM 3033N	IBM 3031	IBM 3081	IBM 3033U	Relative performance*
1.25	Up to 2.0	1.4	1.1 to 1.3	Performance of To
— No	AS/7000	·	AS/9000-2	Performance of Field upgradable to
			10,000 2	
NMOS	NMOS	NIMOS	NIMOS	MAIN STORAGE
NINOS			MINUS	Checking
Yes	Yes	Yes	Yes	Parity
Yes 1	Yes	Yes	Yes	Error detection & correction
	<u> </u>		<u> </u>	No. of check bits per word
360	360	266	336	Read cycle, nanoseconds
360	360	8	8	Vvrite cycle, nanoseconds Bytes fetched per cycle
4M	2M	16M	4M	Minimum capacity, bytes
16M	8M	32M	24M	Maximum capacity, bytes
Yes	Yes	Yes	Yes	Increment size, bytes
4	4	16	8	Minimum number of ways
4	4	16	8	Maximum number of ways
				BUFFER (CACHE) STORAGE
Bipolar ECL	Bipolar ECL	Bipolar ECL	Bipolar ECL	Storage type
8	8	8	8	Cycle time, nanoseconds Bytes fetched per cycle
64K/CPU	16K	64K/CPU	32K	Minimum capacity, bytes
64K/CPU	16K	64K/CPU	32K	Maximum capacity, bytes
				I/O CHANNELS
				Selector channels standard
9	5	12	5	Block multiplexers standard
14	1	18	10	Block multiplexers optional
5	1	7	3	Byte multiplexers standard
-				Subchannels per channel
256	256	256	256	On a block multiplexer
250 —	256	256	256	On a byte multiplexer
Standard	Standard	Optional	Optional	Channel to channel adapter
1 614	1 544	1 534	1 514	Maximum channel data rates
100K	1.5M	1.5M 100K	1.5M	Block multiplexer, bytes/sec.
		-	-	Selector channel, bytes/sec.
21M Optional	11M Ontional	80M Standard	21M Ontional	Aggregate data rate, bytes/sec.
optional	Optional	Clandard	Optional	Data Streaming
		Dis alar FOI	Dinalas 501	CONTROL STORAGE
10 to 20	10 to 20	5.5	5.5	Access time nanoseconds
99	99	160	160	Word size, bits
6K	6K	16K	16K	Minimum number of words
ok Instruction microcode.	Instruction microcode.	Instruction microcode.	IDK Instruction microcode.	Maximum number of words Control storage usage
operating system assist	operating system assist	operating system assist	operating system assist	
\$1,700,000	\$950,000	\$4,150,000	\$1,950,000	PRICING & AVAILABILITY Purchase of CPU with min memory
Yes	Yes	Yes	Yes	Lease terms offered
Yes	Yes	Yes	Yes	Vendor's
Contact vendor	Contact vendor	Contact vendor	Contact vendor	Lease of CPU with min. memory (1-yr.)
2MB	2MB	4MB	4MB	Memory increment size
\$100,000 Vec	\$100,000 Ves	\$100,000 Ves	\$100,000 Ves	Memory increment purchase
Yes	Yes	Yes	Yes	Prime time
				Additional hours
\$11/708/mo. —	\$8,000/mo.	\$12,995/mo. 	\$9,953/mo. 	24 hour Other plans
NAS	MAS	,	Hitaahi	
NAS	NAS	NAS	NAS	Vendor
	J		1	1

Process of instance of the second sec	SYSTEM PARAMETERS Date of introduction 9/80 Date of first delivery 1981 Number installed to date — Production status Active Operating systems DOS/VS No		2/83		
NYSTEM ARAAMETERS 9/90 2/83 2/83 2/83 2/83 Date of introducing 1991 3/83 2/83 2/83 Date of introducing 2/83 2/83 2/83 Difference Active Active Active Production status Active Active Active DSS/VSE No Yes Yes Yes DSS/VSE Yes Yes Yes Yes Others MUS/SP ACP.MFT.MVT ACP.MFT.MVT ACP.MFT.MVT Productory Standard Standard Standard Sta	SYSTEM PARAMETERS Date of introduction 9/80 Date of first delivery 1981 Number installed to date Production status Active Operating systems DOS/VS No		2/83		
Date of instabution 9/80 2/83 3/83 3/83 3/83 3/83 3/83 3/83 3/83	Date of introduction 9/80 Date of first delivery 1981 Number installed to date Production status Active Operating systems DOS/VS		2/83		
Date of first delivery 1981 3/83 3/83 3/83 3/83 Number installed to date Proprietary information Proprietary information Production status Active Active Active Active Operating systems Vac Vac Vac DSI/S1 No Vac Vac Vac DSI/S1 No Vac Vac Vac DSI/S1 Vac Vac Vac Vac DSI/S1 Vac Vac Vac Vac DSI/S1 Vac Vac Vac Vac NS No Vac Vac Vac Vac NS No Vac Vac Vac Vac MM320 Vac Vac Vac Vac Vac Others Vac Vac Vac Vac Vac Valuation of a concentric	Date of first delivery 1981 Number installed to date Production status Active Operating systems DOS/VS			2/83	2/83
Number installed or date model Proprietary information Proprietary information Proprietary information Production status Active Active Active Active Active DSS/VSE No Vss Vss Yss Yss DSS/VSE No Vss Vss Yss SVS No No No No SVS No No No No MVS No No No No MVS No No No No MVS Vss Vss Vss Vss MVS Vss No No No MVS Vss Vss Vss Vss MVSS Vss No No No No Vss ACP. MPT, MVT ACP. MPT, MVT ACP. MPT, MVT ROCESSING FEATURES Vss Standard Standard Standard Miniture In complex — — —	Number installed to date Production status Active Operating systems DOS/VS		3/83	3/83	3/83
Advise Active Active Active Active Active Operating systems Active Active Active Active DSS/VS1 No Yes Yes Yes SS/S No Yes Yes Yes SS/S1 No Yes Yes Yes SS/S1 No Yes Yes Yes SS/S1 No Yes Yes Yes VMS/AA No No Yes Yes VMS/S2 Yes Yes Yes Yes VMSS/S2 Standard Standard Standard Upprocessor Yes Yes Yes Yes Ves Yes Yes Yes Yes Upprocessor Yes Yes Yes Yes Others Standard Standard Standard Standard Observal Standard Standard Standard Standard <	Production status Active Operating systems DOS/VS No		Proprietary information	Proprietary information	Proprietary information
Production status Active Active Active Active Operating systems No Yes Yes Yes DSX/S1 No Yes Yes Yes DSX/S1 Yes Yes Yes Yes DSX/S1 Yes Yes Yes Yes DSX/S1 No Yes Yes Yes DSX/S1 No Yes Yes Yes MXS/XA No Yes Yes Yes MASS Yes Yes Yes Yes MASS Yes Yes Yes Yes MASS No - - - Tots - - - - MCDESSING FEA TUBES - - - - MCDESSING FEA TUBES - - - - MASSINT - - - - - MASSINT - Standard	Production status Active Operating systems DOS/VS No		rophetaly information		
Operating systems No Ves Ves Ves Ves DSS/VS No Ves Ves Ves Ves DSS/VS No Ves Ves Ves Ves DSS No Ves Ves Ves Ves DSS No No No No No MVS No No No No No MSJ/XA No Ves Ves Ves Ves MSJ/XA No Ves Ves Ves Ves Ves (http://initialisoring capability Standard Standard Standard Standard Standard Standard Processor // Pe Ves Ves Ves // Pe	Operating systems DOS/VS No	e	Active	Active	Active
DOS/VS No Yea Yea </td <td>DOS/VS No</td> <td></td> <td></td> <td></td> <td></td>	DOS/VS No				
DOS/VSE Ves			Yes	Yes	Yes
OS/VS1 Yes Yes Yes Yes Yes NVS No No No No No NVS Yes No No No No NVS3 Yes No No No No NVS370 Yes Yes Yes Yes Yes VMS3P Yes Yes Yes Yes Yes Others MVS/SP ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ROCESSING FEATURES Yes Yes Yes Yes Virual storage capability Standard Standard Standard Processor arrangementa Yes Yes Yes Multiprocessor Yes Standard Standard Multiprocessor Image Standard Standard Clock comperitor Standard Standard Standard Clock comperitor Standard Standard Standard Control registers Standard Standard Standard Clock comperitor Standard Standard Standard Control registers Standard Standard Standard Control registers Standard Standard Standard	DOS/VSE No		Yes	Yes	Yes
Sys No Yes No No No No MVS/AA No Ves Yes Yes Yes Yes MVS/AA No Ves Yes Yes Yes MVS/SP ACP. MFT, MVT ACP. MFT, MVT ACP. MFT, MVT ACP. MFT, MVT PROCESSING FEATURES MVS/SP ACP. MFT, MVT ACP. MFT, MVT ACP. MFT, MVT PROCESSING FEATURES Standard Standard Standard Processor arrange capability Processor — — Processor arrange capability Processor — — Processor — — — — Mitipocessor — — — — Mitipocessor — — — — Mitipocessor — — Standard Standard Cabo, comparisor Standard Standard Standard Standard Control register Standard Standard <t< td=""><td>OS/VS1 Yes</td><td></td><td>Yes</td><td>Yes</td><td>Yes</td></t<>	OS/VS1 Yes		Yes	Yes	Yes
NVS Yes No No No No No VMS/CA No Yes	SVS No		Yes	Yes	Yes
NVS/3A No Ves	MVS Voc		No	No	No
WM370 Others Ves Ves Ves Others Ves Ves WSP Ves Ves Ves Ves Ves Others Ves WSP Ves Ves Ves Ves Others Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves Ves ROCESSING FEATURES Standard Standard Standard Standard Standard Uniprocessor - - - - - - Back and to Maximum in complex - - - - - - Mitiprocessor - - - - - - - Multiprocessor - - - - - - - Multiprocessor -			No	Vee	Vee
VMA2D Others Visc MVS/SP Vis	NVS/XA NO		fes	res	res
VMUSP Ves Ves Ves Ves Ves Ves Ves ROCESSING FEATURES Standard Standard Standard Standard Standard Processor arrangements Vss Yes Yes Yes Yes Multiprocessor Yes Yes Yes Yes Yes Multiprocessor Multiprocessor Multiprocessor Multiprocessor Multiprocessor Multiprocessor Multiprotection Standard Standard Standard Standard Octure Standard Standard Standard Standard Optimer Standard Standard Standard Sta	VIVI/370 Yes		tes	Tes	Tes
Others MVS/SP ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ROCESSING FEATURES Standard Standard Standard Standard Virtual storage capability Processor arrangements — — — — Linprocessor Yes Ves Yes — — — Attached processor — — — — — — Matinum in complex — — Standard	VM/SP Yes		Yes	Yes	Yes
ROCESSING FEATURES Standard Standard Standard Standard Virtus Istorage capability Yes Yes Yes Yes Yes Unprocessor	Others MVS/S	'SP	ACP, MFT, MVT	ACP, MFT, MVT	ACP, MFT, MVT
Virtual storage capability Standard Standard Standard Ves Uniprocessor Yes Yes Yes Yes Attached processor Font end to Multiprocessor Multiprocessor Standard Standard Standard Multiprocessor Standard Standard Standard Multiprocessor Standard Standard Standard Clock comparator Standard Standard Standard Standard Churol-weid addressing Standard Standard Standard Standard Doubleword buffer Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Doubleword buffer Standard Standard Standard Standard Standard Standard Standard					
Processor Transportents Processor Pr	Virtual storage capability Standa	ard	Standard	Standard	Standard
Ves	Processor arrangements				
Attabala processor			Vec	Ves	Ves
Attende processor – – – – – – – – – – – – – – – – – – –	Uniprocessor Yes		162	1 65	165
Front end to — — — — Multiprocessor — — — — Multiprocessor — Standard Standard Standard Multimum in complex — Standard Standard Standard Ock comparison Standard Standard Standard Standard Cortrol meters Standard Standard Standard Standard Cortrol meters Standard Standard Standard Standard OPU one-level afdressing Standard Standard Standard Standard Doubleword buffer Standard Standard Standard Standard Standard Standard Standard Standard Standard Chamel infletz S	Attached processor —		-		
Back and to — Minimum in complex — — Standard	Front end to		_		
Multipuessor Mainrum in complex Standard Standard Standard Cock comparator Standard Standard Standard Standard Cortor registres Standard Standard Standard Standard CPU timer Standard Standard Standard Standard Dableword Lufer Standard Standard Standard Standard Dableword Lufer Standard Standard Standard Standard Standard Standard Standard Standard Standard Mulpic bus architecture Standard Standard Standard Standard Standard Standard Standard <td< td=""><td>Back end to</td><td></td><td>_</td><td></td><td>—</td></td<>	Back end to		_		—
Mnimum in complex	Multiprocessor				<u> </u>
Maximum in compare	Minimum in complex	ļ	Standard	Standard	Standard
Clock comparation Standard Standard <td>Maximum in complex</td> <td></td> <td>Standard</td> <td>Standard</td> <td>Standard</td>	Maximum in complex		Standard	Standard	Standard
Labet Comparison Control registers Control registers Control registers Standard Control registers Standard Control registers Standard Control registers Standard Stan		and	Standard	Standard	Standard
UPU Immer Standard Standard Standard Standard CPU one-level addressing Standard Standard Standard Dubleword buffer Standard Standard Standard Mathine check handling Standard Standard Standard Mathine check handling Standard Standard Standard Mathine check handling Standard Standard Standard Standard Standard Standard Standard Channel indirex tadtressing Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Channel indirex tadtressing Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Stan	Clock comparator Standa	aru	Standard Standard	Standard Standard	Stanuaru Stanuaru
Control registers Standard Standard <td>CPU timer Standa</td> <td>aro</td> <td>Standard</td> <td>Standard</td> <td>Standard</td>	CPU timer Standa	aro	Standard	Standard	Standard
CPU one-level addressing Standard Standard Standard Doubleword buffer Standard Standard Standard Interval timer Standard Standard Standard Mutiple bus architecturg Standard Standard Standard Storage protection Standard Standard Standard Storage protection Standard Standard Standard Chamel command retry Standard Standard Standard Standard Standard Standard Standard	Control registers Standa	ard	Standard	Standard	Standard
Doubleword bufferStandardStandardStandardStandardStandardMachine check handlingStandardStandardStandardStandardStandardMitighe bus architectureStandardStandardStandardStandardStandardStandardStorage protectionStandard <td< td=""><td>CPU one-level addressing Standa</td><td>ard</td><td>Standard</td><td>Standard</td><td>Standard</td></td<>	CPU one-level addressing Standa	ard	Standard	Standard	Standard
Interval timer Standard Standa	Doubleword buffer Standa	ard	Standard	Standard	Standard
Machine check handling Standard Standar	Interval timer Standa	ard	Standard	Standard	Standard
Multiple bus Architecture Standard Standard Standard Standard Standard Standard Time-of-day clock Standard Standard Standard Standard Channel infere taddressing Standard Standard Standard Standard Channel infere taddressing Standard Standard Standard Standard Byte oriented operand feature Standard Standard Standard Standard Standard Standard Standard Standard Standard Optional Optional Optional Optional Light pen Remote console printer Console file CPU activity monitor Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard Program event recording Virtual machine assist XI Standard Program event recording Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Standard Stan	Machine check handling Stands	ard	Standard	Standard	Standard
Interpretation of the standard	Multiple hug erebitecture	ard	Standard	Standard	Standard
Stordard Standard Standard <td< td=""><td>Multiple bus architecture Standa</td><td>ard</td><td>Standard</td><td>Standard</td><td>Standard</td></td<>	Multiple bus architecture Standa	ard	Standard	Standard	Standard
Time-of-day clock Standard Standard Standard Standard Standard Channel command retry Standard Standard Standard Standard Dyte oriented operand feature Standard Standard Standard Standard Byte oriented operand feature Standard Standard Standard Standard System/370 Universal Instruction set Standard Standard Standard Standard Console autilities alarm Standard Standard Standard Standard Console autilities alarm Standard Standard Standard Standard Console autilities alarm Standard Standard Standard Standard Light pen Optional Optional Optional Optional Integrated console printer Optional Optional Standard Remote console — Standard Standard Standard Console faile Standard Standard Standard Standard Console faile Standard Standard Standard Standard Console faile Standard Standard Standard Standard Console file Standard Standard Standard Standard <td>Storage protection Standa</td> <td>ard</td> <td>Standard</td> <td>Standard</td> <td>Standard</td>	Storage protection Standa	ard	Standard	Standard	Standard
Channel ormmand retry Standard Standard Standard Standard Standard Standard Channel indirect addressing Standard Optional Optional Optional Optional Optional Console printer One No No No No No No No Standard St	Time-of-day clock Standa	ard	Standard	Standard	Standard
Channel indirect addressing byte oriented operand fasture Byte operand fastur	Channel command retry Standa	ard	Standard	Standard	Standard
Byte oriented operand feature Standard	Channel indirect addressing Standa	ard	Standard	Standard	Standard
Errended precision floating point Standard	Byte oriented operand feature Standa	ard	Standard	Standard	Standard
High speed floating point No Standard Standard Standard System/370 Universal Instruction set Standard Standard Standard Standard Console audible alarm Standard Optional Optional Optional Optional Integrated console printer Optional Optional Optional Standard Standard Remote console — Standard Standard Standard Standard Remote console — Standard Standard Standard Console audible alarm No No No No Remote console — Standard Standard Standard Remote cata link No Standard Standard Standard Console file Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard DTHER FEATURES & A second service processor Option Integration as an option Integration as an option	Extended precision floating point Standa	ard	Standard	Standard	Standard
Inglit speed indaining point No Databatic Databatic Databatic Databatic System/37D Universal instruction set Standard Standard Standard Standard Standard Integrated console printer Optional Optional Optional Optional Optional Light pen No No No No No Remote data link No Standard Standard Standard Console file Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard Virtual machine assist A second service processor console is available as an option Standard Standard Standard Virtual machine assist A second service processor console is available as an option Standard Standard Standard	High speed fleating point		Standard	Standard	Standard
System(370 Universal instruction set Console audible alarm Standard Standard Standard Standard Integrated console printer Optional Optional Optional Optional Light pen No No No No Remote console — Standard Standard Standard Console audible alarm No No No No Remote console — Standard Standard Standard Console audible alarm No Standard Standard Standard Remote console — Standard Standard Standard Console file Standard Standard Standard Standard Console file Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard Extended control mode Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard Standard Standard Standard Standard Standard Option Standard Standard	Custom (270 Universal Lease of Control of Co		Standard	Standard	Standard
Console audible atam Standard Standard Optional Standard	System/3/U Universal Instruction set Standa	aro	Standard	Standard	Standard
Integrated console printer Optional Optional Optional Optional Light pen No No No No No No Remote console — Standard Standard Standard Standard Remote data link No Standard Standard Standard Standard Console file Standard Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard Standard VITHER FEATURES & A second service processor console is available as an option Option Standard Standard Standard	Console audible alarm Standa	ard	Standard	Standard	Standard
Light pen Remote console Remote data linkNoNoNoNoRemote data link Console fileNoStandardStandardStandardConsole file CPU activity monitorStandardStandardStandardStandardStandard Extended control modeStandardStandardStandardStandardProgram event recording Virtual machine assistStandardStandardStandardStandardDTHER FEATURES & COMMENTSA second service processor console is available as an optionA second service processor console is available as an optionImage: StandardImage: Standard	Integrated console printer Option	nal	Optional	Optional	Optional
Remote console — Standard Standard Standard Remote data link No Standard Standard Standard Console file Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard YITHER FEATURES & A second service processor console is available as an option Standard Standard Standard	Light pen No		No	No	No
Remote data link No Standard Standard Standard Console file Standard Virtual machine assist A second service processor console is available as an option A second service processor console proceso	Remote console		Standard	Standard	Standard
The considering Total of the considering Standard Standard Standard CPU activity monitor Standard Standard Standard Standard Extended control mode Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard DTHER FEATURES & console is available as an option A second service processor console is available as an option Image: Standard	Remote data link		Standard	Standard	Standard
Console me Standard Virtual machine assist Standard Stand	Concela filo	ard	Standard	Standard	Standard
CPU activity monitor Standard Standard Standard Standard Extended control mode Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard DTHER FEATURES & A second service processor console is available as an option Option Image: Standard Image: Standard	Console lite Standa		Chandend	Standard	Standard
Extended control mode Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard DTHER FEATURES & A second service processor console is available as an option A second service processor Image: Console is available as an option Image:	CPU activity monitor Standa	aru	Standard	Standard Chan dand	Standard Chan da ad
Program event recording Standard Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard Standard DTHER FEATURES & COMMENTS A second service processor console is available as an option A second service processor Image: Comparison option Image: Comparison option	Extended control mode Standa	ard	Standard	Standard	Standard
Virtual machine assist Standard Standard Standard Standard DTHER FEATURES & COMMENTS A second service processor console is available as an option A second service processor Image: Console is available as an option Image: Co	Program event recording Standa	ard	Standard	Standard	Standard
DTHER FEATURES & A second service processor console is available as an option	Virtual machine assist Standa	ard	Standard	Standard	Standard
COMMENTS console is available as an option	OTHER FEATURES & A seco	cond service processor			
option	COMMENTS consol	ole is available as an			
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AS/9000-2	NAS AS/6620	NAS AS/6630	NAS AS/6650	MODEL
				PROCESSOR PERFORMANCE
8	60	60	50	Machine cycle time, nanoseconds
3M 3033U	4341-12	4341-12	4341-12	Relative performance*
.5 to 1.6	>1.0	>1.3	>1.55	Performance of
			4541-2	
		1.0	1.0	Performance of
NS/9000 DPC	AS/6630	AS/6650		Field upgradable to
				MAIN STORAGE
MOS	Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Storage type
/es	Ves	Ver	Vas	Checking
'es	Yes	Yes	Yes	Fror detection & correction
	1	1	1	No. of check bits per byte
		<u> </u>		No. of check bits per word
266		<u> _</u>	<u> </u>	Read cycle, nanoseconds
28	420	420	350	Write cycle, nanoseconds
3	420	420	350	Bytes fetched per cycle
2M	8	8	8	Minimum capacity, bytes
32M	2M	4M	4M	Maximum capacity, bytes
M	16M	16M	16M	Increment size, bytes
/es	2M	4 M	4M	Interleaving
3				Minimum number of ways
\$				Maximum number of ways
				BUFFER (CACHE) STORAGE
Jipolar ECL	Bipolar RAM	Bipolar RAM	Bipolar RAM	Storage type
76	60	60	60	Cycle time, nanoseconds
8	8	8	8	Bytes fetched per cycle
4K	64K	64K	64K	Minimum capacity, bytes
54K	64K	64K	64K	Maximum capacity, bytes
				I/O CHANNELS
		-	<u> </u>	Selector channels standard
	6	6	8	Selector channels optional
9	4	4	4	Block multiplexers standard
14	2	2	4	Block multiplexers optional
l	2	2	[1	Byte multiplexers standard
5	1	1	1	Byte multiplexers optional
				Subchannels per channel
256	256	256	256	On a block multiplexer
256	256	256	256	On a byte multiplexer
_		1		On a selector
Optional	16	16	16	Channel to channel adapter
	Yes	Yes	Yes	Maximum channel data rates
.5M	3MB	3MB	3MB	Block multiplexer, bytes/sec.
100K	80KB	80KB	80KB	Byte multiplexer, bytes/sec.
	ЗМВ	3MB	3MB	Selector channel, bytes/sec.
21 M	13MB	13MB	13MB	Aggregate data rate, bytes/sec.
Optional	Yes	Yes	Yes	Data Streaming
				CONTROL STORAGE
Bipolar ECL	Bipolar RAM	Bipolar RAM	Bipolar RAM	Storage type
5.5	18	18	18	Access time, nanoseconds
60	72	72	72	Word size, bits
6K	16K	16K	16K	Minimum number of words
6K	16K	16K	16K	Maximum number of words
nstruction microcode,	Variable	Variable	Variable	Control storage usage
perating system assist				PRICING & AVAILABILITY
\$2,750,000	\$255,000	\$341,500	\$417,500	Purchase of CPU with min. memory
/es	Yes	Yes	Yes	Lease terms offered
/es				Vendor's
			—	Third party
Contact vendor	Contact vendor	Contact vendor	Contact vendor	Lease of CPU with min. memory (1-yr.
MB	2	4	4	Memory increment size
100,000	\$19,000	\$38,000	\$38,000	Memory increment purchase
'es	Yes	Yes	Yes	Vendor offered maintenance
'es	—	_ 		Prime time
_		<u> </u>	<u> </u>	Additional hours
11, 450/mo .	\$668	\$777	\$927	24 hour
		—	—	
itachi				Manufacturer
iA3	INAS	CAN	INAS	vendor
		-		

PYCEND PLANAMETERS Date of frint offering base of frint offering Proprietary information Proprietary information Pro		NAS AS/8040	NAS AS/8050	NAS AS/8060	NAS AS/9040
SYSTEM PARAMETERS press pres press press pres					
Date of Introduction 5/83 5/83 5/83 5/83 3/243 3/243 3/243 Number installed to date Proprietry information Proprietry information Proprietry information Proprietry information Monter installed to date Active Active Active Active Operating instance Yes Yes Yes Yes DOS/VS1 Yes Yes Yes Yes DOS/VS1 Yes Yes Yes Yes DOS/VS1 Yes Yes Yes Yes NMS/XA Yes Yes Yes Yes NMS/XA Yes Yes Yes Yes VM/370 Yes Yes Yes Yes Offention Jonaferd Standard Standard Processing Yes Yes Yes VM/370 Yes Yes Yes Yes Uniprocessor Yes Yes Yes Yes Active Yes Yes Yes Yes Active information Jonaferd Standard Standard Disposesor - - - - Active information Standard Standard </td <td>SYSTEM PARAMETERS</td> <td></td> <td></td> <td></td> <td></td>	SYSTEM PARAMETERS				
Date of third columny 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 5/83 7/83 5/83 7/83 5/83 7/84 7/84	Date of introduction	5/83	5/83	5/83	2nd Quarter 1982
Number installed to date Proprietary information Proprietary information Proprietary information Proprietary information Production statul Active Active Active Active Active DSS/VSE Yes Yes Yes Yes Yes Yes DSS/SE Yes Yes Yes Yes Yes Yes MSS/SA Yes Yes Yes Yes Yes Yes DSS/SE Yes Yes Yes Yes Yes Yes MSSA on to - - - - - - Mitterocessor - - - - <td< td=""><td>Date of first delivery</td><td>5/83</td><td>5/83</td><td>5/83</td><td>3rd Quarter 1982</td></td<>	Date of first delivery	5/83	5/83	5/83	3rd Quarter 1982
Adducts abuse to date Inductor instanton Inductor Inductor Operating systems Active Active Active DSS/VS Yes Yes Yes SNS Yes Yes Yes DSS/VS Yes Yes Yes SNS Yes Yes Yes SNS Yes Yes Yes VM/370 Yes Yes Yes Others ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP MFT, MVT	Number installed to date	Proprietany information	Proprietary information	Proprietany information	Proprietary information
Production status Operating statum Opera	Number installed to date	Proprietary information		Frophetary mornation	Frophetary information
Operating systems ves Ves Ves Ves Ves DSS /VS Yes Yes Yes Yes Yes Yes DSS /VS Yes Yes Yes Yes Yes Yes DVS Yes Yes Yes Yes Yes Yes MVS Yes Yes Yes Yes Yes Yes VMS/AA Yes Yes Yes Yes Yes Yes VM/SP ACP, MFT, MVT ACP, MFT	Production status	Active	Active	Active	Active
DSS/VS Yes Yes Yes Yes Yes DSS/VS Yes Yes Yes Yes Yes DVS Yes Yes Yes Yes Yes MVS Yes Yes Yes Yes Yes MVS/A Yes Yes Yes Yes Yes VM/37D Yes Yes Yes Yes Yes VMS storage capability Standard Standard Standard Standard Unprocessor — — — — — More and to r — — — — — More and to r — — — — — More and to r — — — — — Output Standard Standard Standard Standard Sta	Operating systems				
DOS/VSE Yes Yes Yes Yes Yes Yes SNS Yes Yes Yes Yes Yes Yes SNS Yes Yes Yes Yes Yes MSI/XA Yes Yes Yes Yes VM/370 Yes Yes Yes Yes Others ADP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ROCESSING FEATURES Standard Standard Standard Unique costor — — — Attached processor — — — — Attached processor — — — — Morroum in complax — — — — Marturn in complax — — — — Cold, comparizor Standard Standard Standard Standard Doublevort buffer Standard Standard Standard Standard Cold, comparizor Standard Standard Standard Standard Doublevort buffer Standard Standard Standard Standard Standard Standard Standard Standard Standard Doub	DOS/VS	Yes	Yes	Yes	Yes
OS/Sign Yes Yes Yes Yes Yes Yes MVS Yes Yes Yes Yes Yes MVS300 Yes Yes Yes Yes MVS300 Yes Yes Yes Yes MVS300 Yes Yes Yes Yes MVS9P Yes Yes Yes Yes Others ACP, MET, MVT ACP, MET, MVT ACP, MET, MVT ROCESSING FFATURES Standard Standard Standard Processor arrangements Improcessor Yes Yes Yes Mutiprocessor Yes Yes Improcessor Improcessor Mutiprocessor Yes Improcessor Improcessor Improcessor Cold Linear Improcessor Improcessor Improcessor Improcessor Cold Linear Standard Standard Standard Standard Cold Linear Standard Standard Standard Standard Consolverial addressing Standard Standard Standard Standard Consolverial addressing Standard Standard Standard Standard Consolverial addressing Standard Standard <td>DOS/VSF</td> <td>Yes</td> <td>Yes</td> <td>Yes</td> <td>Yes</td>	DOS/VSF	Yes	Yes	Yes	Yes
System Yes	06/1/61	Ves	Voc	Ves	Ves
SVG Ves Ves Ves Ves Ves VVS/XA Ves Ves Ves Ves Ves VM/3D Ves Ves Ves Ves Ves Others ACP. MFT, MVT ACP. MFT, MVT ACP. MFT, MVT ACP. MFT, MVT ROCESSING FEATURES Ves Ves Ves Ves Virual isonga capability Standard Standard Standard Processor arrangements Improvements Improvements Improvements Mitigrocessor Improvements Improvements Improvements Mitigrocessor Improvements Improvements Improvements Mitigrocessor Improvements Improvements Improvements Mitigrocessor Improvements Improvements Improvements Octured registers Standard Standard Standard Obleword Differ Standard Standard Standard Standard Standard Standard Standard Optimert Differ Standard Standard Standard Standard Standard Standard Standard Optimert Differ Standard Standard Standard Standard Standard	03/031	Tes	105	Tes No.	1es
MVS Ves Ves Ves Ves Ves Ves MVSJAD Ves Ves Ves Ves Ves VMVSP Ves Ves Ves Ves Others ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ACP, MFT, MVT ROCESSNG FFATURES Ves Yes Yes Ves Virusi storage-capability Standard Standard Standard Processor - - - - Attached processor - - - - Reference - - - - Merimum in complex - - - - CPU timar Standard Standard Standard Standard Doublevort buffer Standard Standard Standard Standard Doublevort buffer Standard Standard Standard Standard Standard Standard Standard Standard Standard Doublevort buffer Standard Standard Standard Standard Standard Standard Standard Standard Standard Doublevort buffer Standard Standard Standard Standard <td>572</td> <td>res</td> <td>res</td> <td>res</td> <td>res</td>	572	res	res	res	res
MVS/A Ves	MVS	Yes	Yes	Yes	Yes
VM/370 Yes Yes Yes Yes Yes ACP. MFT, MVT ROCESSING FEATURES Standard Standard Standard Writui Storage capability Standard Standard Standard Processor arrangements	MVS/XA	Yes	Yes	Yes	Yes
Wigs Yes Yes Yes Yes Yes Others ACP, MT, MVT	VM/370	Yes	Yes	Yes	Yes
Mache	VM/CP	Vee	Vee	Vec	Voc
PROCESSING FEATURES Standard Standard Standard Standard Standard Virtual storage capability Vee Yes Yes Yes Yes Attachod processor Back and to Multiprocessor Multiprocessor Multiprocessor Multiprocessor -	Others	ACP, MFT, MVT	ACP, MFT, MVT	ACP, MFT, MVT	ACP, MFT, MVT
BOCESSING FEATURES Standard Standard Standard Standard Virtual storage capability Yes Yes Yes Yes Attechod processor - - - - Attechod processor - - - - Back and to - - - - Multiprocessor Standard Standard Standard Standard CPU one-level addressing Standard Standard Standard Standard Doubleword buffer Standard Standard Standard Standard Stondard Standard Standard Standard Standard Stondard Standard Standard Standard Standard Optimeer Standard Standard Standard Standard Doubleword buffer Standard Standard Standard Standard Standard Stand					
Virtual storage capability Standard Standard Standard Standard University Ves Ves Ves Ves Ves Attached processor – – – – – – – – – – – – – – – – – – –	ROCESSING FEATURES				
Processor arrangements Ves Ves Ves Ves Ves Ves Ves Ves Ves Ve	Virtual storage capability	Standard	Standard	Standard	Standard
Unprocessor version Ves Ves Ves Ves Ves Ves Ves Attabade processor – – – – – – – – – – – – – – – – – – –	Processor arrangements				1
Theorem is a second sec	Uniprocessor	Yes	Yes	Yes	Yes
Protection processor — …	Attached presses				
ron end to be the second secon				1-	1
Back and to — — — — — Multiprocessor — — — — — Maximum in complex — — — — — Maximum in complex — — — — — Maximum in complex — — — — — Clock comparator Standard Standard Standard Standard Colv conclovel addressing Standard Standard Standard Standard Doubleword buffer Standard Standard Standard Standard Doubleword buffer Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Mutipbe las architecture Standard Standard Standard Standard Standard Standard Standard Standard Standard Standard Pice orient operand fsature Standard Standard Standard Standard Standard Standard Standard Standard Standard Pice orient operand fsature Standard Standard	Front end to	I—	 	I—	I—
Multipure	Back end to	<u> </u>	<u> </u>		1—
Maimum in complex — ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	Multiprocessor				1
Maximum in complex - - - - Cobe: comparator Standard Standard <td>Minimum in complex</td> <td>_</td> <td></td> <td>_</td> <td><u> _</u></td>	Minimum in complex	_		_	<u> _</u>
Transmission noonpeak – – – – – – – – – – – – – – – – – – –	Maximum in complex		I	<u> </u>	1
Lack comparator Standard Stand	waximum in complex				
CPU timer Standard Stan	Clock comparator	Standard	Standard	Standard	Standard
Control registersStandard <t< td=""><td>CPU timer</td><td>Standard</td><td>Standard</td><td>Standard</td><td>Standard</td></t<>	CPU timer	Standard	Standard	Standard	Standard
CPU one-iwel addressing Standard Standard Standard Standard Standard Interval timer Standard	Control registers	Standard	Standard	Standard	Standard
Doublewords Standard	CPI Lone-level addressing	Standard	Standard	Standard	Standard
Londer of Standard Standard Standard Standard Standard Standard Mulpic bus schlatter Standard Sta	Doubloword buffer	Standard	Standard	Standard	Standard
Interva turner Standard Standard Standard Standard Standard Standard Multiple bus architecture Standard Standar		Chandand	Chandard	Chandand	
Machine check handling Standard Standar	Interval timer	Standard	Standard	Standard	Standard
Multiple bus architecture Standard Stan	Machine check handling	Standard	Standard	Standard	Standard
Storage protection Standard	Multiple bus architecture	Standard	Standard	Standard	Standard
Conserved Standard Standard Standard Standard Channel indirect addressing Standard Standard Standard Standard Byte oriented operand feature Standard Standard Standard Standard Standard Standard Standard Standard Standard System/370 Universal Instruction set Standard Standard Standard Standard Usign terms Optional Optional Optional Optional Optional Usign terms No No No No No Remote data link Standard Standard Standard Standard Console file Standard Standard Standard Standard Console file Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard Virtual machine assi	Storage protection	Standard	Standard	Standard	Standard
Interured USA Standard Standard Standard Standard Channel indirect addressing Standard Standard Standard Standard Byte oriented operand feature Standard Standard Standard Standard Byte oriented operand feature Standard Standard Standard Standard Byte oriented operand feature Standard Standard Standard Standard Consola exitide attraction set Standard Standard Standard Standard System/370 Universal Instruction set Standard Standard Standard Standard Consola exitible atarn Optional Optional Optional Optional Integrated console printer Optional Optional Standard Standard Console axitible atarn No No No No Remote console Standard Standard Standard Standard Console axitible atarn Standard Standard Standard Standard Console atilik Standard Standard Standard Standard Standard Console file Standard Standard Standard Standard Standard CPU axitivity monitor Standard <td>Time of doy clock</td> <td>Standard</td> <td>Standard</td> <td>Standard</td> <td>Standard</td>	Time of doy clock	Standard	Standard	Standard	Standard
Channel command retry Standard Standard Standard Standard Standard Standard Genanel Indirect addressing Standard Optional Optional Optional Itight pen No No No No No No No Remote console Standard Stand	Time-of-day clock	Standard			
Channel indirect addressing Standard Standard Standard Standard Byte oriented operand feature Standard Standard Standard Standard Extended precision floating point Standard Standard Standard Standard System/370 Universal Instruction set Standard Standard Standard Standard Console audible alarm Standard Standard Standard Standard Lingtr pen No No No No Remote console Standard Standard Standard Console file Standard Standard Standard Program event recording Standard Standard Standard Virtual machine assist Standard Standard Standard	Unannel command retry	Standard	Standard	Standard	Standard
Byte oriented operand feature Standard Standard Standard Extended precision floating point Standard Standard Standard System/370 Universal Instruction set Standard Standard Standard Console audible alarm Standard Standard Standard Optional Optional Optional Optional Universal Instruction set Standard Standard Standard Console audible alarm Standard Standard Standard Optional Optional Optional Optional Optional Integrated console printer Optional Optional Standard Standard Remote console Standard Standard Standard Standard Remote console Standard Standard Standard Standard Console audible alarm Standard Standard Standard Standard Remote console Standard Standard Standard Standard Console file Standard Standard Standard Standard Console file Standard Standard Standard Standard Cruber torl mode Standard Standard Standard Standard V	Channel indirect addressing	Standard	Standard	Standard	Standard
Extended precision floating point Standard Standard <t< td=""><td>Byte oriented operand feature</td><td>Standard</td><td>Standard</td><td>Standard</td><td>Standard</td></t<>	Byte oriented operand feature	Standard	Standard	Standard	Standard
Linking perind Standard	Extended precision floating point	Standard	Standard	Standard	Standard
right speed noduring point standard Optional Optional Optional Integrated console printer Optional Standard Standard Standard Standard Standard Optional Integrated console printer Standard Standard Standard Standard Standard Optional Integrated console Standard Standard Standard Standard Standard Console file Standard Standard Standard Standard Standard Optional Integrated console file Standard Standard Standard Standard Standard Standard Standard Optional Integrated control mode Standard Standard Standard Standard Standard Standard Optional CPU activity monitor Standard Optional Standard S	Lich aroad flasting asiat	Standard	Standard	Standard	Standard
System/370 Universal Instruction set Standard	nign speed floating point	Standard	Standard	Standard	Standard
Console audible alarmStandardStandardStandardStandardStandardIntegrated console printerOptionalOptionalOptionalOptionalOptionalOptionalOptionalIntegrated console printerNo <th< td=""><td>System/370 Universal Instruction set</td><td>Standard</td><td>Standard</td><td>Standard</td><td>Standard</td></th<>	System/370 Universal Instruction set	Standard	Standard	Standard	Standard
Integrated console printer Optional Optional Optional Optional Optional Light pen No No No No No No Remote console Standard Standard Standard Standard Standard Remote data link Standard Standard Standard Standard Standard Console file Standard Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard Standard DTHER FEATURES & SOMMENTS Sommer Standard Standard Standard Standard Standard Standard	Console audible alarm	Standard	Standard	Standard	Standard
Light pen No No No No Remote data link Standard Standard Standard Standard Console file Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard Extended control mode Standard Standard Standard Standard Program event recording Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard VITHER FEATURES & Source Contact vendor Standard	Integrated console printer	Optional	Optional	Optional	Optional
Light period No No No Remote console Standard Standard Standard Remote console Standard Standard Standard Remote data link Standard Standard Standard Console file Standard Standard Standard Console file Standard Standard Standard CPU activity monitor Standard Standard Standard Extended control mode Standard Standard Standard Program event recording Standard Standard Standard Virtual machine assist Standard Standard Standard DTHER FEATURES & Standard Standard Standard Contact vendor Image: Standard Standard Standard	Light nen	No	No	No	No
nemote data link Standard Standard Standard Standard Standard Standard Standard Standard Standard Intervention Standard Standard Standard Standard Standard CPU activity monitor Standard Standard Standard Standard Standard Standard Standard Standard Standard Intervention Standard Standard Standard Standard Standard Standard Intervention Standard Standard Standard Standard Standard Standard Intervention Standard Sta	Demote appeals	Chan doud	Chandrad	Chan doud	Store doesd
Hemote data link Standard	nemote console	Standard	Standard	Standard	Standard
Console file Standard	Remote data link	Standard	Standard	Standard	Standard
CPU activity monitor Standard Standard <td>Console file</td> <td>Standard</td> <td>Standard</td> <td>Standard</td> <td>Standard</td>	Console file	Standard	Standard	Standard	Standard
Extended control mode Program event recording Virtual machine assist DTHER FEATURES & COMIMENTS COMMENTS Contact vendor Contact vendor	CPU activity monitor	Standard	Standard	Standard	Standard
Program event recording Virtual machine assist VIrtual machine assist DTHER FEATURES & COMMENTS VIRTUAL Contact vendor	Extended control mode	Standard	Standard	Standard	Standard
Program event recording Standard Standard Standard Standard Virtual machine assist Standard Standard Standard Standard DTHER FEATURES & COMMENTS Contact vendor Contact vendor		Chan dand	Stanuaru Stanuaru	Standard	Chandend
Virtual machine assist Standard Standard Standard Contact vendor DTHER FEATURES & COMMENTS	rogram event recording	Standard	Standard	Standard	Standard
DTHER FEATURES & Contact vendor	Virtual machine assist	Standard	Standard	Standard	Standard
COMMENTS					Contact wonder
	COMMENTS				
				1	

NAS AS/8040	NAS AS/8050	NAS AS/8060	NAS AS/9040	MODEL
0	40	35	38	Machine cycle time, nanoseconds Relative performance*
3083E	3083B	3083J	3083B	То
1.2	1.0	1.0	>1.0	Performance of
		_		То
				Performance of
AS/8050	AS/8060		AS/9050	Field upgradable to
				MAIN STORAGE
ynamic NMOS	Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Storage type
′es	Yes	Yes	Yes	Parity
'es	Yes	Yes	Yes	Error detection & correction
	1	1	1	No. of check bits per byte
_	<u> </u>			No. of check bits per word
60	360	360	342	Read cycle, nanoseconds
16U	360	360	342	Write cycle, nanoseconds
) IN Л	8 9M	B	8	Bytes tetched per cycle
em .	8IVI 22M	0IVI 2254	3IVI 22M	Winimum capacity, bytes
		32101		Indiaximum capacity, bytes
	4101	4	OIVI	Increment size, bytes
	-	17	8	Minimum number of wave
			16	Maximum number of ways
				BUFFER (CACHE) STORAGE
lipolar RAM	Bipolar RAM	Bipolar RAM	Bipolar RAM	Storage type
0	40	35	19	Cycle time, nanoseconds
1	8	8	8	Bytes fetched per cycle
2K	64K	60K	64K	Minimum capacity, bytes
2K	64K	60K	64K	Maximum capacity, bytes
				I/O CHANNELS
_				Selector channels standard
0	24	24	24	Selector channels optional
6	8	8	8	Block multiplexers standard
D	24	24	24	Block multiplexers optional
				Byte multiplexers standard
-	Б	6	Б	Byte multiplexers optional
50	250	256	250	Subchannels per channel
.50	250	200	250	On a block multiplexer
.50	250	250	256	On a byte multiplexer
6	16	16	10	
0	Nos	10 Voc	Voc	Channel to channel adapter
	2NAD			Plack multiplayer, butes (see
OOKB	100KB	100KB		Byte multiplexer, bytes/sec.
MR	3MB	3MB	3MB	Selector chapped bytes (sec.
7	56	56	60MB	Addregate data rate, butce/coo
/es	Yes	Yes	Yes	Data Streaming
lipolar RAM	Bipolar RAM	Bipolar RAM	Bipolar RAM	Storage type
	7	7	7	Access time, nanoseconds
26	126	126	160	Word size, bits
6K	16K	16K	16K	Minimum number of words
6K	16K	16K	16K	Maximum number of words
ariable	Variable	Variable	Variable	Control storage usage
1 240 000	¢1.759.000	#2 251 000	\$1.004.000	PRICING & AVAILABILITY
1,349,000	φ1,758,000 Voo	φ2,251,000 Νοο	1,804,000	Furchase of CPU with min, memory
65	Tes	res	res	Lease terms offered
- Contact vendor	Contact vendor	Contact vendor	Contact vendor	Third party
				Lease of CPU with min. memory (1-yr
	4	4	8	Memory increment size
76,000	\$76,000	\$76,000	\$152,000	Memory increment purchase
es	Yes	Yes	Yes	Vendor offered maintenance
_				Prime time
				Additional hours
-			185 646/mo	24 hour
 5,264 	\$5,431			Other plans
 5,264 	\$5,431 —			Other plans
5,264 	\$5,431 NAS		NAS NAS	Other plans Manufacturer Vendor

YSTEM PARAMETERS Date of introduction Date of first delivery Number installed to date				
YSTEM PARAMETERS Date of introduction Date of first delivery Number installed to date				
Date of introduction Date of first delivery Number installed to date	10.10.1000			
Number installed to date	12nd Ubarter 1982	2nd Quarter 1982	2nd Quarter 1982	2nd Quarter 1982
Date of first delivery Number installed to date		2nd Quarter 1992	1 at Ouester 1982	
Number installed to date	3rd Quarter 1982	Srd Quarter 1982	Ist Quarter 1963	ist Quarter 1983
	Proprietary information	Proprietary information	Proprietary information	Proprietary information
Production status	Active	Active	Active	Active
Operating systems				
DOSIVS	Yes	Yes	Yes	Yes
	ly _a	V an	Vee	Vee
DOS/VSE	Tes	res	Tes	res
OS/VS1	Yes	Yes	Yes	Yes
SVS	Yes	Yes	Yes	Yes
MVS	Yes	Yes	Yes	Yes
MUCIYA	Vas	Voc	Voc	Voc
	165	1 es	1es Mar	165
vivi/370	les	Tes	Tes	Tes
VM/SP	Yes	Yes	Yes	Yes
Others	ACP, MFT, MVT	ACP, MFT, MVT	ACP, MFT, MVT	ACP, MFT, MVT
Virtual storage capability	Standard	Standard	Standard	Standard
Proposor arrangements				
rocessor arrangements				N
Uniprocessor	res	Yes	Yes	Yes
Attached processor		1	I—	I
Front end to		I—	I—	I—
Back end to	1	I		<u></u>
Multiprocessor	1		Vac	Vec
Multiplocessor	1	1	100	103
Minimum in complex	1-		2-	2
Maximum in complex	1		2	2
Clock comparator	Standard	Standard	Standard	Standard
CPU timer	Standard	Standard	Standard	Standard
Control registers	Standard	Standard	Standard	Standard
	Standard	Standard	Stondard	Standard
unu one-level addressing	Standard	Standard	Standard	Standard
Doubleword buffer	Standard	Standard	Standard	Standard
nterval timer	Standard	Standard	Standard	Standard
Machine check handling	Standard	Standard	Standard	Standard
Multiple bus probitocture	Standard	Standard	Standard	Standard
	Standard	Chan dan d	Chandrad	
storage protection	Standard	standard	Standard	Standard
Time-of-day clock	Standard	Standard	Standard	Standard
Channel command retry	Standard	Standard	Standard	Standard
Channel indirect addressing	Standard	Standard	Standard	Standard
Byte oriented operand fasture	Standard	Standard	Standard	Standard
	Standard	Standard	Standard	Standard
extended precision floating point	Standard	Standard	Standard	Standard
High speed floating point	Standard	Standard	Standard	Standard
System/370 Universal Instruction set	Standard	Standard	Standard	Standard
Console audible alarm	Standard	Standard	Standard	Standard
ntograted consols relater	Optional	Ontional	Ontional	Optional
ntegrateo console printer	optional	optional	optional	
Light pen	NO	INO	INO	INO
Remote console	Standard	Standard	Standard	Standard
Remote data link	Standard	Standard	Standard	Standard
Console file	Standard	Standard	Standard	Standard
CPI Lactivity monitor	Standard	Standard	Standard	Standard
	Chandand	Chandend	Chan dand	Chandraid
Extended control mode	Standard	Standard	Standard	standard
Program event recording	Standard	Standard	Standard	Standard
Virtual machine assist	Standard	Standard	Standard	Standard
THER FEATURES &	Contact vendor	Contact vendor	Contact vendor	Contact vendor

70C-010-45ee Computers

All About Plug-Compatible Mainframes

NAS AS/9050	NAS AS/9060	NAS AS/9070	NAS AS/9080	MODEL
38	30	38	30	PROCESSOR PERFORMANCE Machine cycle time, nanoseconds
30831	30916	20914	20914	Relative performance*
50833	30813	30011	30816	10
>1.0	>1.0	>1.0	>1.4	Performance of
	[-		То
			-	Performance of
AS/9060, AS/9070	AS/9080	AS/9080	AS/9080	Field upgradable to
				MAIN STORAGE
Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Storage type
Yes	Yes	Yes	Ves	Checking
Yes	Yes	Yes	Yes	Error detection & correction
1	1	1	1	No. of check bits per byte
342	270	342	270	No. of check bits per word Read cycle, nanoseconds
342	270	342	270	Write cycle, nanoseconds
8 0 M A	8	8	8	Bytes fetched per cycle
32M	32M	32M	64M	Maximum capacity, bytes
8M	8M	16M	16M	Increment size, bytes
8	8	16	16	Interleaving Minimum number of wave
16	16	16	16	Maximum number of ways
Bipolar RAM	Bipolar RAM	Bipolar RAM	Bipolar RAM	Storage type
19	15	19	19	Cycle time, nanoseconds
8	8	8	8	Bytes fetched per cycle
64K	256K	2X64K	2X256K 2X256K	Minimum capacity, bytes Maximum capacity, bytes
				indxinian odpubly, bytes
	1			I/O CHANNELS
24	24	24	24	Selector channels optional
8	8	16	16	Block multiplexers standard
24	24	32	32	Block multiplexers optional
6	6	12	12	Byte multiplexers optional
	0.50			Subchannels per channel
256	256	256	256	On a block multiplexer
		200	200	On a selector
16 Xaa	16	16	16	Channel to channel adapter
3MB	3MB	3MB	3MB	Block multiplexer, bytes/sec.
100KB	100KB	100KB	100KB	Byte multiplexer, bytes/sec.
3MB 60MB	3MB 75MB	3MB BOMB	3MB 96MB	Selector channel, bytes/sec.
Yes	Yes	Yes	Yes	Data Streaming
		,		
Bipolar RAM	Bipolar RAM	Bipolar RAM	Bipolar RAM	Storage type
7	7	7	7	Access time, nanoseconds
160 16K	160 16K	160 16K	160 16K	Word size, bits
16K	16K	16K	16K	Maximum number of words
Variable	Variable	Variable	Variable	Control storage usage
\$2,316,000	\$3,003,000	\$3,606,000	\$4,907,000	Purchase of CPU with min. memory
Yes	Yes	Yes	Yes	Lease terms offered
 Contact vendor	Contact vendor	Contact vendor	Contact vendor	Third party
				Lease of CPU with min. memory (1-yr.)
8 \$151.000	8	8	8	Memory increment size
Yes) Yes	Yes	⊅ 15∠,000 Yes	Viemory increment purchase Vendor offered maintenance
				Prime time
				Additional hours
ຈຸດ, ເດລ, ແລງ	φ/,σι2/mo. 	(⊅9,∠53/m0. 	i⇒ 14,200/mo. 	24 nour Other plans
NAS	NAS	NAS	NAS	Manufacturer Vender
1170	INAS		INAS	Vendor
		<u> </u>		

MODEL	Nixdorf 8890/10	Nixdorf 8890/30	Nixdorf 8890/50	Nixdorf 8890/70
SYSTEM PARAMETERS		1		
Date of introduction	*4th Quarter 1983	*2nd Quarter 1982	*2nd Quarter 1982	*2nd Quarter 1982
Date of first delivery	4th Quarter 1983	2nd Quarter 1983	3rd Quarter 1983	1st Quarter 1984
Number installed to date	**	See 8890/10	See 8890/10	See 8890/10
Production status	Active	Active	Active	Active
Operating systems				
DOS/VS	Yes	Yes	Yes	Yes
DOS/VSE	Yes	Yes	Yes	Yes
OS/VS1	Yes	Yes	Yes	Yes
SVS	Yes	Yes	Yes	Yes
MVS	Yes	Yes	Yes	Yes
	No	NO	No	No
VM/SP	Yes	Yes	Yes	Ves
Others	NIDOS/VSE, SSX/VSE	NIDOS/VSE, SSX/VSE	NIDOS/VSE, SSX/VSE	NIDOS/VSE, SSX/VSE
Virtual storage capability	Yes	Yes	Yes	Yes
Processor arrangements		· · · · ·	1	
Uniprocessor	Yes	Yes	Yes	Yes
Attached processor	<u> </u>			
Front end to			—	
Back end to		-	·	<u> </u>
Multiprocessor	 	· [_
Minimum in complex	I—	<u> </u>	1	<u> </u>
Maximum in complex				
Clock comparator	Standard	Standard	Standard	Standard
CPU timer	Standard	Standard	Standard	Standard
Control registers	Standard	Standard	Standard	Standard
LFU one-level addressing	Standard	Standard	Standard	Standard
DoubleWord Duffer	Standard	Standard	Standard	Standard
merval timer Maabina abaak bandling	Standard	Standard	Standard	Standard
Multiple bus architecture	Standard	Standard	Standard	Standard
Storage protection	Standard	Standard	Standard	Standard
Time-of-day clock	Standard	Standard	Standard	Standard
Channel command retry	Standard	Standard	Standard	Standard
Channel indirect addressing	Standard	Standard	Standard	Standard
Byte oriented operand feature	Standard	Standard	Standard	Standard
Extended precision floating point	Standard	Standard	Standard	Standard
High speed floating point	Standard	Standard	Standard	Standard
System/370 Universal Instruction set	Standard	Standard	Standard	Standard
Console audible alarm	Standard	Standard	Standard	Standard
Integrated console printer	Optional	Optional	Optional	Optional
Light pen				—
Remote console	Standard	Standard	Standard	Standard
Remote data link	Standard	Standard	Standard	Standard
Console file	Standard	Standard	Standard	Standard
CPU activity monitor	Standard	Standard	Standard	Standard
Extended control mode	Standard	Standard	Standard	Standard
Program event recording	Standard	Standard	Standard	Standard
Virtual machine assist	Standard	Standard	Standard	Standard
THER FEATURES &	*In U.S. only	*In U.S. only	*In U.S. only	*In U.S. only
OMMENTS	**Approximately 300 world-	***Integrated peripheral	See 8890/30	See 8890/30
	wide customers with 1 or	adaptors, for disk, tape,	***	•••
	more systems	communications terminal	1	J
	See 8890/30***	display, printers, card		ł
		readers, floppy diskettes.		
	1	1	1	1

Nixdorf 8890/10	Nixdorf 8890/30	Nixdorf 8890/50	Nixdorf 8890/70	MODEL
200		200		PROCESSOR PERFORMANCE
200	200	200	200	Machine cycle time, nanoseconds
IBM 4321	IBM 4331-1	IBM 4341-9	IBM 4341-10	
				Performance of
				Performance of
8890/30-50-70	8890/50-70	8890/70	-	Field upgradable to
				MAIN STORAGE
MOS	MOS	MOS	MOS	Storage type
Yes Yes	Yes	Yes	Yes	Checking
Yes	Yes	Yes	Yes	Error detection & correction
1	1	1	1	No. of check bits per byte
4 870	4	4	4	No. of check bits per word
870	870	870	870	Kead cycle, nanoseconds Write cycle, nanoseconds
8	8	8	8	Bytes fetched per cycle
1MB	1MB	1MB	2MB	Minimum capacity, bytes
		41VIB 1MB	1MB	Maximum capacity, bytes
Yes	Yes	Yes	Yes	Interleaving
2	2	2	2	Minimum number of ways
2	2	2	2	Maximum number of ways
				BUFFER (CACHE) STORAGE
	<u> </u>		MOS	Storage type
		(50	Cycle time, nanoseconds
			8 64K	Bytes fetched per cycle Minimum canacity bytes
]		64K	Maximum capacity, bytes
Integrated			1	1/O CHANNELS
Integrated				Selector channels optional
Integrated	0	0	0	Block multiplexers standard
Integrated	1	2	4	Block multiplexers optional
Integrated	1	1	2	Byte multiplexers standard Byte multiplexers optional
Integrated		[.	-	Subchannels per channel
Integrated	256	256	256	On a block multiplexer
Integrated	32	32	32	On a byte multiplexer
Integrated	Yes	Yes	Yes	Channel to channel adapter
Integrated	1			Maximum channel data rates
Integrated	1.5MB	2MB	2MB	Block multiplexer, bytes/sec.
Integrated	140KB	140KB		Selector channel bytes/sec
Integrated	5MB	5MB	5MB	Aggregate data rate, bytes/sec.
—	-	Yes	Yes	Data Streaming
				CONTROL STORAGE
Multiple	Multiple	Multiple	Multiple	Storage type
Multiple	Multiple	Multiple	Multiple	Access time, nanoseconds
Multiple	Multiple	Multiple	Multiple	vvord size, bits Minimum number of words
Multiple	Multiple	Multiple	Multiple	Maximum number of words
Multiple	Multiple	Multiple	Multiple	Control storage usage
			1	
\$85,000-120,000 Avg. Svs.	\$150,000-200,000 Avg. Svs.	\$250,000-285,000 Avg. Svs.	\$400,000-500,000 Avg. Svs.	Purchase of CPU with min. memory
Contact vendor	Contact vendor	Contact vendor	Contact vendor	Lease terms offered
 Cantost vonder				Vendor's
				Lease of CPU with min. memory (1-yr)
_	<u> </u>			Memory increment size
Contact vendor	1MB	1MB	1MB	Memory increment purchase
Contact vendor	Contact vendor	Contact vendor	Contact vendor	Vendor offered maintenance
			Contact vendor	Additional hours
_	_	—		24 hour
-				Other plans
Nixdorf	Nixdorf	Nixdorf	Nixdorf	Manufacturer
Nixdorf	Nixdorf	Nixdorf	Nixdorf	Vendor
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MODEL	STC ULTIMACC USX39	STC ULTIMACC USX40	STC ULTIMACC USX44	
SYSTEM PARAMETERS				
Date of introduction	11/82	11/82	9/82	
Date of first delivery	3/83	2/83	5/83	
Number installed to date	8	12	2	
Production status	Active	Active	Active	
Operating systems				
DOS/VS	Yes	Yes	Yes	
DOS/VSE	Yes (370 Mode)	Yes	Yes	
0S/VS1	Yes	Yes	Yes	
svs	Yes	Yes	Yes	
MVS	Yes	Yes	Yes	
MVS/XA	Yes	Yes	Yes	
VM/370	Yes	Yes	Yes	
VM/SP				
Others	DOS26	DOS26	DOS26	
PROCESSING FEATURES	Other stand	Crandond	Chan daud	
Virtual storage capability	Standard	Standard	Standard	1
Processor arrangements		N	No.	1
Uniprocessor	Yes	res	Tes	ł
Attached processor		1		
Front end to	I		1-	
Back end to	I—	—	1—	1
Multiprocessor			1—	
Minimum in complex		 —		1
Maximum in complex		-	 —	
Clock comparator	Standard	Standard	Standard	
CPU timer	Standard	Standard	Standard	
Control registers	Standard	Standard	Standard	
CPU one-level addressing	Standard	Standard	Standard	
Doubleword buffer	Standard	Standard	Standard	
Interval timer	Standard	Standard	Standard	
Machine check handling	Standard	Standard	Standard	1
	Standard	Standard	Standard	
Numple bus architecture	Standard	Standard	Standard	
Storage protection	Standard	Standard	Standard	
I ime-of-day clock	Standard	Standard	Standard	
Channel command retry	Standard	Standard	Standard	
Channel indirect addressing	Standard	Standard	Standard	
Byte oriented operand feature	Standard	Standard	Standard	
Extended precision floating point	Standard	Standard	Standard	
High speed floating point	No	No	No	
System/370 Universal Instruction set	Standard	Standard	Standard	
Console audible alarm	Standard	Standard	Standard	
Integrated console printer	Optional	Optional	Optional	
Light pen	No	No	No	
Remote console	Optional	Optional	Optional	
Remote data link	Optional	Optional	Optional	
Console file	Standard	Standard	Standard	
CPLL activity monitor	Standard	Standard	Standard	
Extended control mode	Standard	Standard	Standard	
Extended control mode	Standard	Standard	Standard	
Frogram event recording Virtual machine assist	Standard	Standard	Standard	
OTHER FEATURES &	Sold only as complete	Sold only as complete	Sold only as complete	
COMMENTS	system which includes	system which includes	system which includes	
	1270 MB Disk, 1 tape,	1270 MB Disk, 1 tape,	Dual processor, 2.5GB	
	1 printer.	1 printer.	Disk, 1 tape, 1 printer.	
			1	
	1		1	
			1	
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			1	
			1	
	1		1	
				1
		1		
			1	
			1	
			1	
			1	1
			1	

All About Plug-Compatible Mainframes

STC ULTIMACC USX39	STC ULTIMACC USX40	STC ULTIMACC USX44	MODEL
100	100	100	PROCESSOR PERFORMANCE Machine cycle time, nanoseconds
4331-2	4331-2	4341-2	To
1.2	1.5	1.0	Performance of
-	—		То
 USX40	USX44		Performance of Field upgradable to
Dynamic NMOS	Dynamic NMOS	Dynamic NMOS	Storage type
Yes	Yes	Yes	Parity
Yes 1	Yes 1	Yes 1	Error detection & correction No. of check bits per byte
4	4	4	No. of check bits per word
500	500	500	Write cycle, nanoseconds
8 1M	8 1M	8 1M	Bytes fetched per cycle Minimum canacity, bytes
16M	16M	16M	Maximum capacity, bytes
1M No	No	No	Increment size, bytes Interleaving
			Minimum number of ways
No	Vac	N	
	Static TTL	Static TTL	BUFFER (CACHE) STORAGE Storage type
	300	300	Cycle time, nanoseconds
	16K	16К	Minimum capacity, bytes
-	16K	16K	Maximum capacity, bytes
1	1	2	I/O CHANNELS
5	5	10	Selector channels optional
5	1	10	Block multiplexers standard Block multiplexers optional
1	1	2	Byte multiplexers standard
256	256	256	Byte multiplexers optional Subchannels per channel
256	256	256	On a block multiplexer
Optional	Optional	Optional	On a selector
зм	ЗМ	3M	Channel to channel adapter Maximum channel data rates
500K	500K	500K	Block multiplexer, bytes/sec.
10M	10M	10M	Byte multiplexer, bytes/sec. Selector channel, bytes/sec.
Yes	Yes	Yes	Aggregate data rate, bytes/sec. Data Streaming
{			CONTROL STORAGE
Static NMOS	Static NMOS	Static NMOS	Storage type
32	32	32	Word size, bits
4K 16K	4K 16K	4K 16K	Minimum number of words
Instruction microcode, operating system assist	Instruction microcode, operating system assist	Instruction microcode, operating system assist	Control storage usage
\$182,282 (system)	\$215,496 (system)	\$321,529 (system)	PRICING & AVAILABILITY Purchase of CPU with min. memory
No	No	No	Lease terms offered Vendor's
Yes	Yes	Yes \$15,623/mo. /2 vr.)	Third party
1MB	1MB	1MB	Lease of CPU with min. memory (1-yr.) Memory increment size
\$7,500 Yes	\$7,500 Yes	\$7,500 Yes	Memory increment purchase
Yes	Yes	Yes	Prime time
res No	Yes No	Yes No	Additional hours 24 hour
			Other plans
CPU-Magnuson*, I/O—STC STC ULTIMACC Systems, Inc.	CPU-Magnuson*, I/OSTC STC ULTIMACC Systems, Inc.	CPU-Magnuson*, I/O—STC STC ULTIMACC Systems, Inc.	Manufacturer Vendor