

Datapoint ARC Systems

1200, 1560, 3200, 6600, 8400, 8600 & 8800 Series

Processors • 1560 on Z80A • 6600 and 8600 based on a Datapoint 8-bit word microprocessor • 8400 based on Intel 80286, 8800 based on the Z8000, a 16-bit word microprocessor • 1200 based on Convergent Technology N-GEN • 3200 based on Charles River Data Systems Universe Systems • IBM PC, PC/XT, PC/AT.

Memory • 1560 (64K/128K bytes) • 6600 (64K/128K/256K bytes) • 8600 (128K/256K bytes) • 8400 (512K to 1M bytes), 8800 (256K to 1M bytes in 128K-byte increments) • 1200 (256K to 1M bytes) • 3200 (1M to 8M bytes).

Disk • 1560 (1.0M/1.5M/2.0M/3.0M bytes diskette and 5M/10M bytes nonremovable disk) • 6600 (20M-/40M-byte half fixed/half removable disk and 120M/180M/240M-byte storage system) • 8600 (1.0M-byte diskette, 10M-byte cartridge, and 20M- to 100M-byte nonremovable disk with 20M-byte cartridge tape for backup) • 8800 (135M/270M/540M/810M/1080M-byte nonremovable disk and 67M/134M/201M/268M-byte removable disk) • 1200 (1.2M/10M/20M bytes); 3200 (152M bytes).

Terminals/Workstations • 1560 (up to 3 and console) • 6600 (up to 24 local/remote and console) • 8400 (up to 8), 8600 (up to 12 local/2 remote, and console) • 8800 (up to 24 local/remote and console) • 1200 (single user system) • 3200 (28).

Printers • local terminal connections can be used for workstations or printers • serial character printer (35 cps, letter quality) • serial/parallel matrix printers (160 cps) • serial/parallel belt printers (230/340 lpm) • drum printers (900 lpm) • parallel band printers (300/600 lpm) • laser printer (about 1300 lpm) used as resource on ARC • 1200 supports 35-cps letter-quality printer or 1600-cps matrix printer.

First Delivery • 1560 (1982) • 6600 (1976) • 8400 (1984) • 8600 (1981) • 8800 (1981) • 1200 and 3200 (1984 by Datapoint).

Systems Delivered • over 6,000 ARC networks are installed worldwide, over 4,000 in the U.S.

Comparable Systems • Datapoint systems are unique in that they are designed for a distributed system environment although they can operate standalone; all can reside amicably and cooperatively on ARC and share resources; Burroughs B 25 also based on Convergent Technology NGEN, thus comparable to 1200 Series • 1560 comparable to Digital Equipment PDP-11/23 system, and Rainbow Personal Computer; IBM Personal Computer; Hewlett-Packard HP 125, HP 150, and HP 250; and Wang word processing and office systems • 6600 and 8600, comparable to MAI Basic Four, Four-Phase, IBM S/36 DEC PDP-11 low-end RSX-11M systems, and Wang 2200 systems • 8400 comparable to IBM S/36, 3200 comparable to VAX-11/780 • 8800 comparable to Burroughs B 900, IBM S/38, Wang VS/100, and Digital Equipment larger PDP-11 RSX-11 systems.

Vendor • Datapoint Corporation; 9725 Datapoint Drive, San Antonio, TX 78284 • 512-699-7542.

Canadian Headquarters • Datapoint Canada, Inc; 4881 Yonge Street, Suite 700, Willowdale, ON M2N 5X3 • 416-222-8005.

GSA • yes.

Distribution • nationwide through 64 direct sales and service offices; internationally subsidiaries in 14 countries and distributors throughout the world.

■ ANALYSIS

Datapoint ARC systems started out as a means to supplement the processing power of the Datapoint intelligent terminals/small business computers. They have grown into a comprehensive distributed processing environment interconnected inhouse with ARC network and communicating with remote sites through dedicated communication processors. For a time, Datapoint increased ARC systems capability for the integrated office environment at a furious pace. Rising revenues accompanied Datapoint's increased product enhancements in 1982 until it was revealed that the company had inflated earnings with early shipments of orders. Profits plummeted due to the restatement of earnings. During most of 1983, Datapoint operated in recovery

mode, trying to restore confidence in the company and its products.

The company got out of the PBX business by selling its Communications Management Division to **Teknekron Industries, Inc in June 1983.**

Also, during 1983, Datapoint began to clean up its product lines and eliminated products with little differentiation one to another; it dropped the 1800, 3000, and 4000 Series, keeping only the 1560, 6600, 8600, and 8800 Series.

Unfortunately, 1984 did not bring Datapoint's problems to an end. Currently, the company is fighting an unfriendly takeover bid. Datapoint appears to be successfully defending itself, but the continued unstable situation is certainly not good for the company.

Despite its troubles, the company introduced many new products in 1984 to modernize its distributed processing line. It produced the PRO-VISTA automated office software that runs under RMS on ARC. The PRO-VISTA software provides a new user interface into ARC. Datapoint is standardizing on this user interface.

Datapoint introduced 2 new PRO-VISTA workstations to go along with the software. VISTA-PC (1200 Series) is based on the Convergent Technology N-GEN. The VISTA-84 is based on the Intel 80286 and was developed inhouse. The VISTA-PC (1200 Series) can operate standalone, as a clustered system with 5 VISTA-PCs sharing the resources of a master VISTA-PC, or as a workstation on ARC. The VISTA-84 can connect directly to ARC and supports up to 8 VISTA-82 workstations.

Datapoint also added the 3200 Series, which can operate as standalone systems or as resource processors on ARC. The 3200 Series is based on the Charles River Data Systems Universe Series. These are 32-bit Supermini processors with a performance rating in the 1 MIPS range. The 3200 Series runs under the UNOS operating systems, a UNIX look-alike, and provides the Informix relational database management system.

The 3200 Series connects to ARC through an INX-32 Adapter that allows RMS Workstations on ARC to emulate UNOS terminals. The 3200 supports up to 28 terminals. Thus, the 3200 offers a number of firsts for Datapoint: the first 32-bit processor, first 1 MIPS processor, first database management system, and first system to support as many as 28 terminals.

In addition, Datapoint has developed an INX-PC adapter to allow IBM PCs, PC/XTs, and PC/ATs to interface to ARC. The INX-PC interface includes a 1569 processor running the DOS software.

All of these additions means ARC now supports 7 operating systems including Datapoint RMS and DOS on 6000 and 8000 Series; CP/M on 1560; Convergent Technology CTOS and MS-DOS on 1200 Series; Charles River Data Systems UNOS on 3200 Series; and IBM PC-DOS on the IBM PCs.

Datapoint has brought all these systems together through developing some standard Datapoint products such as DATAPOLL and DATABUS for the 3200 and 1200 Series, by providing emulation of RMS terminals for accessing the 3200, and by providing interfaces to ARC for the 1200 and the IBM PCs.

The current product line is versatile and flexible, with a broad range of products. Although a 1-MIPS processor is not considered very powerful as a standalone unit, it is quite powerful for the distributed processing environment of ARC where any number of systems can offer resources to be shared by the workstations connected to the network.

Primarily, the reason all these systems can operate together amicably on ARC is that Datapoint has implemented its "dispersed processing" architecture in a relatively simple way. Systems are specialized and operate as application or resource processors. Furthermore, Datapoint has been operating in the dispersed processing mode for about 10 years, and the company knows how to integrate different systems together into a total environment.

□ Strengths

Datapoint's greatest strength is the company's long experience in providing a workable dispersed processing environment. The

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new products Datapoint introduced in 1984 have modernized its offerings for today's office. The PRO-VISTA interface has been designed for the office worker; it does not require an EDP professional to use it. The 1200 is based on a workstation design that has proved very popular. The 3200 adds power, a relational database, a UNIX-like operating system, and support for up to 28 workstations.

Adding support for IBM PCs allows Datapoint customers to tie their IBM PCs together on ARC as well as to access Datapoint resources from the PC. This facility should broaden the market for Datapoint's products considerably.

No vendor in the local area network business has had more experience than Datapoint. Until the past year, however, ARC was used primarily to tie Datapoint systems together. Now, Datapoint has opened up its architecture, making it more general purpose for a multivendor environment, specifically for IBM and Datapoint.

□ Limitations

Datapoint's greatest weakness is the uncertainty of its management. Hopefully, the situation will stabilize and allow the company to concentrate on its products and its competitors. The Datapoint product strategy in the past year has been to offer a well-rounded line for the office environment. The company needs time to continue its integration of the new products now being offered.

■ COMMUNICATIONS FACILITIES OVERVIEW

□ Distributed Communications

An ARC system processor provides communications to support its application programs only. When connected to ARC, the processor can use the communication facilities implemented on a shared resource processor. An ARC system can have a number of communication processors that support different facilities shared by the other Processors on ARC.

Most Datapoint communication facilities can operate in both the standalone and ARC environment. All Datapoint computer systems can connect to ARC through a Resource Interface Module (RIM) or through an interface adapter that contains a RIM. The RMS operating system includes the imbedded software modules required for the system to allocate resources to users accessing the system through ARC. The CP/M operating system, which runs on the 1560 only, also has imbedded software modules for interfacing with ARC. DOS requires the addition of DOS ARC modules running on a File Processor to allow allocation of resources to systems connected to ARC.

The INX-32 adapter interfaces the 3200 Series systems to ARC. In addition, it allows RMS workstations on ARC to emulate UNOS terminals on the 3200. Thus, the 3200 can operate as a shared resource system on ARC.

The INX-PC adapter interfaces the IBM PC (including AT and XT) to ARC. The adapter plugs into the IBM PC. INX-PC includes a Datapoint 1590 processor and RIM adapter so the IBM PC can access and share ARC resources. The 1590 runs under DOS.

The 1200 Series connects to ARC through an ARC module that includes a RIM. ARC is supported by a separate software module running under CTOS. Also, the 1200 can connect to a Datapoint processor and emulate an 8220 terminal. The 8220 Emulation package runs under both CTOS and MS-DOS.

□ Distributed Configurations

The main components of ARC systems are Application and Resource Processors with attached terminals/workstations. All processors can operate in standalone mode or can be a member of an ARC network.

Datapoint offers 7 processors for ARC configurations: 1200, 1560, 3200, 6600, 8400, 8600, and 8800. The 3200, 6600, 8600, and 8800 can function as either an Application or Resource Processor under ARC, or they can operate as standalone units. The 1560 also operates as an Application or Resource Processor on an ARC system interconnecting 1560s, or it can function in a standalone

environment or as an Application Processor on ARC with other Datapoint processors.

The 1200 can also operate as an Application or Resource processor on a network of up to 6 systems: 5 can operate as application processors while another can operate as the resource processor. It can also function in standalone mode or as an Application Processor (workstation) on ARC.

In addition, IBM PC can also attach to ARC as Application Processors and access and share ARC resources.

The number of terminals/workstations that can be configured under ARC depends on the applications being run, and on whether other ARCs are being linked together. Most standalone ARCs use at least 1 Resource Processor for each 5 to 18 Application Processors. A fully loaded ARC can include 23 Resource Processors and 230 Application Processors, and an Application Processor can accommodate up to 28 terminals for a total of 6,440 terminals on a single ARC. If more terminals are required, additional ARCs can be linked locally through LightLink or remotely through gateway communications.

The smallest Datapoint system configuration can function as a workstation. Under DATASHARE, systems can support from 4 to 24 users running data-entry applications and sharing a DATABUS interpreter. Under RMS operating system, up to 24 users can share system resources in a multitasking, multiprogramming environment. Under UTOS, the 3200 can support up to 28 terminals; these terminals can access only the local resources of the 3200. The 8400 can attach up to eight 8220 terminals. Thus, an ARC system can consist of a wide variety of attached workstations/processors.

□ Distributed Communications Utilities

Datapoint provides 4 broad classes of communication products: ARCGATE, ARCLINK, DATAPOLL, and MULTILINK. ARCGATE products allow ARC processors to communicate with a mainframe computer through terminal emulation or channel attachment. ARCLINK provides facility for processors on ARC to communicate with a remote Resource Processor on another ARC. DATAPOLL allows Datapoint processors to communicate with each other in master/slave mode for file collection and distribution. MUTLILINK is an enhancement to the DATABUS language and interpreter to provide facilities for concurrent communication with program execution. The MULTILINK modules are basically line drivers implementing various protocols for DATABUS language extensions.

■ SOFTWARE

□ Terms & Support

Terms • most system software for the Datapoint systems is free when ordered at the same time as the processor; notable exceptions are the software packages supplied with the 1200 and 3200 systems • without a hardware order, it is available for a nominal one-time license fee, such as \$1,500 for each DOS, RMS, BASICPLS, FORTRAN, or EM3270 • IEOS software is an exception; there is no charge for it at any time, whether ordered with a processor or not • a media charge is made for all supported software; monthly maintenance fee is \$10 for each DOS and \$20 for each RMS product • the monthly maintenance fee per software product entitles the user to all updates; updates for DOS are not automatic, the user must order them; the updates for RMS are automatic • CP/M software has an initial license fee and a media charge • Datapoint charges for the 1200 and 3200 software.

Support • for most Datapoint products, it is bundled with purchase of hardware; support contract customized to user needs; local systems engineers are backed up by software support teams at the regional and headquarters levels; fixes are made to software as quickly as possible, but no specific response times are guaranteed • 1200 maintenance is unbundled and on an annual basis.

□ Operating Systems

Datapoint supports 7 operating systems: CTOS, UNOS, CP/M, PC-DOS, and MS-DOS on ARC in addition to the standard

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Datapoint DOS and RMS. CTOS (Convergent Technology Operating System) that runs on the 1200 Series should not be confused with the old Datapoint CTOS that ran on the old 2200 and 5500 systems. MS-DOS also runs on the 1200 Series. UNOS (a UNIX look-alike) runs on the 3200 Series that is based on the Charles River Data Systems Universe Systems. PC-DOS runs on IBM PCs. CP/M runs only on the 1560. DOS runs on all Datapoint systems except the 8800. RMS runs on all processors except the 1560 models. REMDOS is a variation on DOS that provides remote diagnostic capability to allow for central site service and maintenance.

The Datapoint CP/M is an enhanced version of the standard CP/M operating system, and can coexist with DOS and RMS systems on ARC. Each operating system must have its own disk for file storage because the data formats differ. Software modules are currently available to convert files between RMS and DOS systems. No conversion programs are available to allow files to be transferred between CP/M and DOS or RMS systems.

DOS is basically a single-tasking operating system made up of a number of software modules which perform various functions. A second task-handling capability is optional. DOS requires another subsystem such as DATASHARE or MULTIFORM to allocate shared resources. DATASHARE, a timesharing executive that runs under DOS or RMS, allows from 4 to 24 users to share a DATABUS interpreter.

RMS is a true multitasking, multiprogramming operating system that can allocate shared resources. The limitation on the number of users is due to the physical limitations of the processor, such as memory size and number of connections for terminals. RMS also provides extensive security features to ensure program security and data integrity.

CTOS (Convergent Technology Operating System)

CTOS, the operating system for the 1200 (VISTA-PC), is a real-time multitasking system. The context manager can load up to 10 jobs at runtime and run all 10 simultaneously. The user can move from job to job while other jobs continue to execute. Multiple jobs can go down to the record level for file sharing. CTOS supports a wide range of programs. CTOS file structure is supported on ARC and CTOS files can be interchanged with UNOS and RMS files.

80999 CTOS for Disk Systems • for 1200 only: \$210 lcns

81000 CTOS for Diskette Systems • for 1200 only: 110

80880 EM 8220 • allows 1200 to emulate Datapoint 8220 terminal, which is supported by both the DOS and RMS operating environments • supported by CTOS and MS-DOS: 175

80881 Color PAC • combined package of Word Processing, Multiplan, Business Graphics, and Context Manager • runs under CTOS only: 700

80883 Cluster-PAC • supports the clustering of six 1200s with one 1200 with a hard disk operating as a master; the 1200s are daisy-chained together; allow sharing of disk, printer, and communication lines • runs under CTOS only: 600

80884 Word Processing • included in 80881; CTOS only: 450

80885 Multiplan • included in 80881; CTOS only: 250

80886 Business Graphics • included in 80881; CTOS only: 200

80887 Context Manager • allows up to 10 jobs to run simultaneously; CTOS only: 350

80889 BSC 3270 • allows 1200 to look like 3276 Cluster Controller with 3278 display stations; CTOS only: 500

80890 2780/3780 • allows 1200 to look like 2780/3780 RJE terminal; CTOS only: 300

80893 DATAPOLL • implementation of Datapoint's standard communication protocol for data transmissions between Datapoint systems; compatible with other Datapoll products; MS-DOS or CTOS: 300

80894 Systems-PAC • software development package; CTOS only: 700

80895 DBMS Runtime • user can integrate as DBMS in COBOL programs; CTOS only: 900

80897 Basic Compiler • CTOS only: 300

80898 COBOL Compiler • CTOS only: 900

80899 FORTRAN Compiler • CTOS only: 350

80900 Pascal Compiler • CTOS only: 300

80901 SNA-PAC • same as BSC 3270 except using SDLC protocol; CTOS only: 600

80902 X.25 Interface • certified by Telenet and Tymnet; provides up to 16 channels; supports data rate up to 9600 bps • CTOS only: 500

80905 R:Base 4000 • single user DBMS; CTOS only: 495

80906 R:Base 6000 • multiuser DBMS; for use when 1200s are clustered for resource sharing; CTOS only: 1,900

80953 ARC Software • upward-compatible with cluster software that supports 1200 clusters; designed to allow 1200 systems on ARC to share resources; can attach to RMS system and access RMS resources such as PRO-VISTA modules; can also access such systems as 3200 in RMS environment; easy to use • includes User's Guide; CTOS only: 75

MS-DOS

Standard MS-DOS operating system that runs on the 1200 Series.

80998 MS-DOS • with GW BASIC; supports some of the same programs as CTOS; 80880 EM 8220, and 80893 DATAPOLL are described under CTOS section • for 1200 only: \$65 lcns

80892 Databus for Developers • compiler with other tools for program development; compatible with other Datapoint Databus products; MS-DOS only: 450

80896 MS-DOS Programmers Utilities • for MS-DOS only: 75

80908 Lotus 1-2-3 • standard package for MS-DOS only: 495

80926 Databus Interpreter • compatible with other Datapoint Databus packages; for MS-DOS only: 100

LCNS: license fee (one-time charge), most software bundled in system price. Prices current as of March 1985.

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UNOS (A UNIX look-alike)

UNOS is a multiuser, multitasking, timesharing operating system that supports Informix relational database management system in addition to RM/COBOL, C, and Databus development languages. Databus is the Datapoint Business Language. UNOS supports the 3200 in standalone mode or as a resource processor on ARC.

Support for ARC requires the INX-32 Adapter, which allows RMS terminals to emulate UNOS terminals.

80975 UNOS • for 3200 only:	\$1,000 lcms
80988 UNOS Tools • for 3200 only:	500
80974 C Language Compiler • for 3200 only:	950
80976 MAP • for 3200 only:	500
80977 LEX with MAP Interface • for 3200 only:	900
80978 LEX • a full-featured word processing package; menu-driven with extensive help facilities:	750
80979 MULTIPLAN • high-performance spreadsheet:	350
80980 INFORMIX with MAP Interface • for 3200 only:	1,100
80981 INFORMIX • relational database management system:	950
80982 RM COBOL • for 3200 only:	950
80983 DATABUS • Datapoint Business Language; for 3200 only:	1,500
80987 2780/3780 Communication • for 3200 only:	200
81013 INX-32 Interface • supports the INX-32 Adapter; allows 3200 to operate as resource on ARC; supports high-speed file transfers over ARC with RMS systems • UNOS-HOP software also supplied to run on RMS system to allow RMS workstations to access 3200 resources:	500

PC-DOS

PC-DOS runs only on the IBM PCs connected to ARC.

RMS Features Versus DOS

Multitasking • RMS provides multitasking for however many users can be attached • DOS is a basic single-tasking operating system, with optional dual-tasking (shared Databus interpreter foreground) • an RMS processor can simultaneously be both a file-server (Resource Processor) and Application Processor on ARC • a DOS processor can be one or the other on ARC.

Virtual Processing Resource • RMS enables a nonintelligent 8200 terminal to appear intelligent (a processing resource) to a user • DOS cannot.

Resource Sharing • RMS provides total generalized disk and communications sharing on ARC, and printer sharing/spooling under direct user control • DOS provides limited disk/communications sharing on ARC, and spooled 3270 communications.

Operations on Files • RMS permits an operation to be applied to a generic set of files • DOS does not.

File Capacity • under RMS, the only practical limit on size/number of files is the physical disk space available • under

DOS, the largest disk file is limited to 10.5M bytes, and a logical volume can contain only up to 256 files • RMS permits 10,000 files on a disk, which for practical purposes is no limit.

File Compression • RMS has space and digit compression • DOS has only space compression.

Security Features • RMS has a tree-structure of "catalogs" defining a user's area of access • user passwords and/or commands can be required for catalog and/or file-level access, at any user privilege level • standalone DOS has user-level security at the application level, but any user at the system console has total power • DOS ARC implements user passwords.

Languages/Word Processing • COBOL, CHAIN, and IEOS Word Processing are all enhanced under RMS over DOS versions.

CP/M • enhanced version of the standard CP/M operating system; Datapoint offers WordStar, SpellStar, and MailMerge to run under CP/M • requires 1500 processor; can coreside with DOS and RMS systems on ARC:

\$395 lcms

Disk Operating System (DOS)

Three versions of DOS are currently offered although 7 versions are supported. DOS.A, B, and C are for Datapoint 1100 or 2200 processors no longer marketed. DOS.D runs on all ARC processors except 1560 and 8800 and supports 9370 mass storage devices, and 9374 disk cartridges. DOS.E runs on 5500 or 6600 processors and supports 9350 disk cartridges. DOS.G runs on 1800 (no longer marketed) and supports diskette drives. DOS.H runs on a 1560 processor and supports integral dual diskettes.

DOS.D • mass storage disk operating system that is essentially identical to DOS.G except that DOS.D is supported on ARC system; will operate in conjunction with two to eight 9370 series disk drives; supports the Partition Supervisor (released separately); supports up to 160M-byte (of 20M-byte cartridge) or 180M-byte (of 60M-byte disk pack) disk on 6600 systems; supports up to 40M-byte (of 10M-byte cartridge) or 100M-byte (of 20M-byte nonremovable) disk on 8600 systems (standalone), or 8600 systems without disk as ARC Applications Processor.

DOSE • requires 5500 or 6600 processor with 48K memory and up to four 9350 cartridge disks with 4K controller • does not support ARC, otherwise similar to DOS.D.

DOS.H Diskette Operating System • included with 1560 system; entry-level operating system; upward compatible with DOS on larger Datapoint systems; basic interface between the operator and specific processing tasks; takes near-English requests from the operator, loads requested programs, provides peripheral control, including the management of data files created on diskettes; can process 2 tasks simultaneously • Concurrent Job Loader divides resources into a user program area (normal batch job) and a concurrent job area (specialized runs); concurrent (second) job must be designed specifically to be used as such; data entry application (Dataform or Databus) or a processing activity (Databus or DOS utility) may share resources with concurrent job • IBM 2780 emulator, the IBM 3780 emulator, or a Datapoll slave program provides communications concurrently with data entry, data inquiry, or processing; concurrent print spooler available; a function key allows the operator to check on the progress of a concurrent printing or communications task without stopping the primary task • includes over 30 utility features accessible directly from console for functions such as SORT, EDIT, BACKUP, REFORMAT, and CHAIN (links execution of program to completion of previous program) • data reliability is maintained by verifying retrieved data against a cyclic redundancy check character stored on diskette; all data written on diskette is immediately reread to verify the data stored; data file reliability is provided via system backup information and a comprehensive repair utility program to allow recovery of data files lost or damaged due to diskette media wear or power failures; system security is provided by delete or write protection, as well as via file access lockout that can restrict system operation to various subsets of diskette files • supports sequential, random, hierarchical ISAM, and key-sequential file

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access methods • requires 4K bytes of system memory; resides on each diskette used • supports ARC.

Resource Management System (RMS)

Operating Environment • multiuser, multitasking RMS operating system supports standalone and Attached Resource Computer (ARC) network configurations; processors running under RMS and Datapoint Disk Operating System (DOS) can coexist in ARC networks; high-level-language applications can be transported from DOS to RMS configurations; processors currently supported by RMS include Datapoint 6600, 8400, 8600, and 8800 • in standalone configurations, RMS processors perform all system and applications processing; in ARC network configurations, RMS processors can be Resource or Applications Processors; Resource Processors primarily perform disk management functions; Application Processors primarily run user programs, accessing disk resources attached to other processors • up to 24 local and/or remote interactive terminals per RMS standalone or ARC Applications Processor; each interactive terminal user can access all software-supported facilities • up to 255 processors and over 6,000 interactive terminals per ARC network; multiple networks can be interconnected with full resource sharing.

Resource Management • dynamic resource management supports user/task sharing of all system components, including processors, memory, communications devices, disk storage, and peripherals; RMS locates and assigns resources to users/tasks as required; interactive terminal users can access remote files and peripherals as if they were locally attached • the RMS nucleus, a library of processor-dependent routines, allocates/deallocates resources and monitors, controls, schedules, and dispatches all system activities/tasks; RMS Nucleus functions include user-transparent I/O management; dynamic memory allocation/deallocation in 4K-byte sectors (users can optionally specify the amount of main memory to be allocated to a task); file handling; program loading and execution control; multitasking scheduling • under RMS, resources are categorized as either single- or multiple-file; single-file resources include communications devices, tape drives, terminals, and printers; disk units are the only multiple-file resources.

Program Processing • concurrent interactive and batch application processing; multitasking based on timeslicing and dynamic resource management • multitasking is defined for internal and user task levels; internal multitasking permits I/O processing to be performed concurrently with applications program processing; user multitasking permits multiple applications programs to be processed concurrently • user tasks are categorized as workstation, local, or independent tasks; a workstation task is associated with each active terminal; workstation tasks perform support functions under operator control; workstation tasks can spawn local tasks (e.g., application module); local tasks are under control of the spawning workstation task and use the same memory map, registers, and security/priority levels; workstation tasks can also spawn independent tasks (e.g., print spooling); independent tasks are totally independent of the spawning workstation task and must terminate themselves • intertask communication is via reserved areas in main memory called pipes.

Data Handling • sequential, indexed-sequential, and random file access methods supported by RMS through COBOL and DATABUS programming languages.

Communications Support • IBM 2780/3780, HASP, and Datapoint DATAPOLL emulation • interprocessor communications management in ARC network environments.

Programming Support • COBOL; Databus (COBOL-like business language); Datashare (multiuser Databus); CHAIN (job control language).

User Interface • user interface to RMS software is through VISTA-GUIDE and VISTA-VIEW • system access control is multilevel; users must know the symbolic name of a system resource to access that resource; additionally, system resources can be password-protected; up to 9 different passwords can be assigned to each resource; file access privileges can be selectively restricted by password to any combination of

read/write/rename/catalog/create/delete/change; security levels (separate from passwords) are assigned to each user and each file; security levels range from 0 (limited access) to 9 (global access); a user's security level must be greater than or equal to a file's security level to permit any access to the file.

Data Management

DOS File Management • DOS provides general file management via a library of utility programs • about 40 standard utility programs interface between user and processing tasks • file directory maintains 256 file names to classify files • provides facilities to locate, expand, compress, and access files • access methods are random, sequential, and indexed sequential (ISAM).

DOS Dataform • keyboard-/forms-oriented data entry facility • once form is created, the processor console or a datastation can be used for the data-entry function.

DOS Multiform • Dataform facility extended for use by up to 3 users: one is the processor console and the other 2 are datastations • up to 34 fields can be defined per screen format • provides 5 passes of the fields to refine specifications • each user assigned 16K bytes of virtual memory • requires processor with at least 2 disk units.

SORT • allows a file to be sorted into ascending or descending order based on any number of keys supplied by the user; the collation order can be modified if desired, and multiple levels of keys can be employed; a file may be searched and stripped to produce multiple output files from a single input file; output files are fully compatible with all other Datapoint files • requires disk-based system.

RMS Disk File Structure • disks are logically divided into files; up to 10,000 files per disk; maximum file size is dependent only on physical disk capacity • files consist of 256-byte sectors; first sector in a file contains a File Description Table used by RMS to address the file; disk space is allocated to files in clusters; a cluster is a group of physically contiguous sectors; for example, 16 sectors per cluster on 67M- and 135M-byte disk drives used with the 8800; clusters are grouped into segments; up to 32 segments per file; any number of clusters (up to physical disk capacity) per segment • Hierarchical Structure Identification (HSI) is used to group files into multilevel, hierarchical structures; HSI structures consist of any number of levels, with any number of files per level; each level is assigned a name by appending an identifier to the name of the next higher level; lowest level names cannot exceed 32 characters in length • disk volume descriptions consist of tables located at fixed addresses; Locked-Out Segment Table (LOST) points to disk segments unavailable for use; Cluster Allocation Table (CAT) is a one-to-one bit map of clusters; Hashed File Directory (HFD) describes file locations on disk; File Structure Directory (FSD) is used to locate files in an HSI structure.

Utilities are available to allow RMS and DOS to coexist on ARC. Some software that runs under DOS is not available to run under RMS, thus combined DOS/RMS systems are common. An associative Index Generator is also available to allow DOS files to be accessed using generic keys.

Conversion Utilities • designed to facilitate transition from DOS files to RMS files • include GETARC, PUTARC, GETDOS, and PUTDOS; all run under RMS.

DOS ARC to RMS ARC File Transfer (GETARC) • allows user to transfer files controlled by DOS ARC File Processor to an RMS disk; does not compromise DOS ARC security • RMS ARC to DOS ARC File Transfer (PUTARC) • allows user to transfer an RMS disk to a disk controlled by a DOS ARC File Processor.

DOS to RMS File Transfer (GETDOS) • allows user to transfer local DOS disk files to an RMS disk; DOS disk must be on a drive physically attached to RMS node running GETDOS; RMS disk can be any RMS disk resource.

RMS to DOS File Transfer (PUTDOS) • allows user to copy RMS text files to a DOS disk in DOS format.

Associative Index Generator (AIMDEX) • produces associative index required for Associative Index Method (AIM) access to disk data files • runs under DOS.

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□ Communications/Networks

Datapoint provides numerous software modules to handle telecommunications applications. Many of the modules can be used with standalone processors or with processors on ARC. On ARC, the communications software runs on an Applications Processor dedicated as a communication processor. Generally, the ARC boundary is transparent to the user, thus a terminal user operates as if the attached processor were standalone. The facilities provide for communicating with remote or local mainframes, other ARCs, remote Datapoint systems running under DATASHARE (a timesharing system), and standalone Datapoint processors.

The DOS ARC modular software allows Application Processors on ARC to share a common database on a File Processor. RMS systems can be system generated to operate as shared resources on ARC. The principal difference between RMS and DOS ARC is that DOS requires a system such as DATASHARE to control and allocate system resources. RMS does not require a system manager. Control of system resources can be distributed among the RMS systems on ARC.

Communications Software

DOS ARC • runs on File Processor and supported by DOS operating systems running on any number of Application Processors connected to ARC • provides full set of commands to control file processor operation.

DOS ARC Boot Tape Writer (ARCBMAKE) • produces a boot tape to load DOS.D and programs in Datapoint 6600 processors from an ARC File Processor.

DOS ARC Bootstrap (ARCBOOT) • for diskette-based old 1100 Series system; allows them to connect to ARC.

DOS ARC Disk Volume Maintenance (ARCID) • allows maintenance of disk volumes managed by ARC File Processors.

DOS ARC Disk Volume Automatic Execution Clear (AUTOCLR) • clears automatic execution specified for a user for automatic initialization; clears volume to non-auto-execute condition.

DOS ARC Disk Volume Access (MOUNT) • utility to establish logical connection with disk volume(s) an Application Processor can access • volumes can reside in from 1 to 31 File Processors and the location is transparent to Application Processor; user types in name and codeword and ARC software finds the volume.

DOS ARC Disk Volume Write Protection (PROT VOL) • allows user to write-protect any disk volume controlled by a File Processor.

DOS ARC File Copy (ARCOPY) • bidirectional file transfer utility for use between ARC system and an alien DOS.

DOS ARC System Statistics (ARCSTAT) • provides detailed statistical data on ARC operations; can be displayed on an Application Processor's screen or written on disk for later printing used to optimize ARC performance.

DOS 1800 RIM Loader (BOOT RIM) • enables 1800 system to participate in ARC system.

DOS ARC Print Request Queuing (SPOOL) • provides means to load print requests to an ARC UNSPOOL queue.

DOS ARC Print Unspooling (UNSPPOOL) • allows deferred printing of standard print files located on a file processor • up to 3 local printers are supported at each site.

ARC GATE Products • provide for communication between ARC and IBM mainframes; products include ACMLU, AC3271B, AP3270, DS3270, DSMLU, and WS3270.

ACMLU • IBM 3270 Emulator runs on a CP on ARC under DOS.D; uses SNA/SDLC line protocol; emulates 3274 SDLC cluster controller, 3776 SDLC batch controller on a combination 3274/3776; as 3274, supports 32 terminals or printers; as 3776, supports RJE site with card reader/punch, printer, and interactive console; as 3274/3776, supports 26 terminals or printers and 1 RJE site with card reader/punch, printer, and interactive console.

ARC GATE 3270 • same as ACMLU except it emulates IBM 3271 BSC cluster controller; also runs under DOS.D • supports up to 32

IBM 3277 terminals or IBM 328X printers, number depends on processor model; operates in multipoint configurations over 2-wire or 4-wire leased lines as up to 96M bps.

AP3270 • designed to execute existing 3270 applications; runs under DOS.D on 1800/3800/8600 processor • emulates IBM 3277/3278 display terminal and 328X printer.

DS3270 • 3270 DATASHARE Adjunct to ARCGATE 3270 software to allow Datapoint 8200 terminals to emulate basic features of IBM 3277/3278.

WS3270 • runs on any RMS workstation that can run IEOS (Integrated Electronic Office Station) software; emulates all function keys available on 3270.

DSMLU • 3770 DATASHARE adjunct to ACMLU Batch software to allow Datapoint terminals to emulate the basic features of the IBM 3776.

Local Connect Products • support channel-attached IBM S/370-compatible mainframes; require the Datapoint Channel Adapter which attaches directly to IBM mainframe byte multiplexer channel; run under the DOS.D or DOS.E operating system.

Channel Input-Output Unit Record Utility (CHIOUR) • provides emulation of up to 16 unit record devices: card readers, card punches, line printers, and 1052 system console • provides operator-controlled utility for fast data transfers between an AP on ARC and mainframe.

Datapoint Attached Support Processor (DASP) • provides for remote batch communication between mainframe and an AP on ARC; includes spooling system, scheduler, message switching system, and communication system.

Direct Channel Interface Option (DCIO) • emulates up to 16 unit record devices; paired to provide 8 input and 8 output files; a card reader, for example, is paired with a card punch or line printer • up to 8 programs on the mainframe can access DCIO concurrently or a single program can use all 8 pairs concurrently • monitors and logs all disk file activity.

ARCLINK • provides a telephone link over a dial-up or leased line at up to 19.2K bps to a remote ARC File Processor; totally transparent to other Application Processors on ARC except response is slower; user simply logs on to a disk volume • runs under Datapoint 6000 Application Processor with a 9481 Communication Adapter installed.

MULTILINK • an enhancement of the DATABUS language that includes facilities for concurrent communications; allows communication between a user's DATABUS program and a variety of other computer systems using telecommunication facilities • all programs that run under DATABUS or DATASHARE interpreter will run under MULTILINK interpreter; a MULTILINK system in a network controlled by a host computer has access to its local database, to the host's database; the host can also poll and access other databases on the network, providing access to all data • run under DOS operating system; communication can be either interactive or batch; several program modules or line drivers are available to communicate with other Datashare systems, other vendor mainframes, and other networks: Burroughs, IBM, Sperry, Honeywell, and vendors that support TTY, as well as X.25 networks.

DOS Burroughs Newline RJE MULTILINK Interface (MLDC 1000) • emulates an RJE station of large-scale Burroughs computer using Burroughs NEWLINE RJE protocol; operates over 2- or 4-wire, leased, or switched line at up to 4800 bps.

DOS DATASHARE-to-DATASHARE MULTILINK Line Driver (MLDSDS) • enables DATASHARE systems to communicate with each other within a multidrop network using standard DATABUS SEND and RECEIVE verbs.

DOS Remote User MULTILINK Driver (MLRUP) • allows DATASHARE system to communicate with DASP (Datapoint Attached Support Processor) system.

DOS MULTILINK SNA Remote Batch Line Handler (MLSNA) • provides access method for DATABUS programs running under DATASHARE to transmit and receive batch data to/from a host

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operating in an SNA environment; emulates many functions of the IBM 3777 Multiple Logical Unit batch terminal.

DOS Burroughs MULTILINK Interface (MLTC3500) • interactive support for synchronous or asynchronous communication with Burroughs mainframe.

DOS Sperry Uniscope MULTILINK Interface (MLUN200) • external interface for 1 to 4 DATASHARE system to communicate with Sperry mainframe using Uniscope line discipline; supports 1 to 4 DATASHARE users communicating synchronously.

DOS Honeywell VIP MULTILINK Interfaces (MLVIP) • external interface for 1 to 4 DATASHARE users to operate in a multipoint environment and communicate with mainframe supporting the Honeywell 7000 Visual Information Projection (VIP) terminals.

DOS MULTILINK X.25 LAPB Driver (MLX25B) • runs on an ARC communication processor; permits access to other processors and terminals on an X.25 packet-switching network from Application Processors residing on ARC; provides up to 24 logical connections simultaneously through 1 physical connection to the packet network.

DOS IBM 3741 MULTILINK Driver (ML3741) • point-to-point driver that emulates IBM 3741 in nontransparent BSC mode at speeds up to 4800 bps; 1 DATASHARE port configured to control 3741 communication.

DOS IBM 3700 MULTILINK Line Driver (ML3770) • allows MULTILINK to emulate IBM 3770 terminals on multipoint BSC line for communication at up to 9600 bps with IBM system.

DOS 1800 IBM MULTILINK Line Driver (ML377018) • for Datapoint 1800 only; emulates IBM 3770 BSC protocol for communication with an IBM system at up to 4800 bps.

DOS IBM 3780 MULTILINK Driver (ML3780) • emulates IBM 3780 terminals in point-to-point BSC environment for communication with IBM system at up to 4800 bps.

DOS IBM Channel Adapter Interface (MLCI) • provides access method for DATABUS programs running under DATASHARE to transmit/receive information to/from an IBM S/370-compatible host as if it were a directly connected card reader, card punch, or printer.

Burroughs Poll/Select Line Handler for DBML15 (ML15TC35) • line handler for use on Datapoint 1500 processor to communicate with Burroughs system using Burroughs Standard Poll/Select protocol.

Teletypewriter Line Handler for DBML15 (ML15 TTY) • line handler for Datapoint 1500 processor to communicate with system that supports USASCII teletypewriter protocol.

1500 Honeywell VIP MULTILINK Interface for DBML15 (ML15 VIP) • simulates a single Honeywell VIP terminal; interfaces Datapoint 1500 DATABUS interpreter with a Honeywell VIP 7700 system.

DATAPOLL • a series of programs and a protocol designed to collect and distribute files in distributed network; supported on all Datapoint processors; runs under RMS and DOS; Datapoint provides 24 DATAPOLL programs for a wide variety of hardware configurations using synchronous or asynchronous communication, leased or switched lines, half- or full-duplex, at data rates up to 4800 bps • DATAPOLL Master allows communication with 1 or more unattended remote Datapoint processors running DATAPOLL Slave program; provide for disk spooling under DOS operating systems.

REMDOS (Remote DOS) • designed for centralized service and maintenance for slave sites from a master site; allows master console to operate as the slave console for debugging or updating programs; uses a Datapoint synchronous protocol.

Multiple Terminal Emulator (MTE) • provides capability to emulate both remote and batch terminals such as IBM 2780, 3780, 2770, and 3770, as well as IBM HASP, JES, and RES workstations; also emulates Honeywell's G-115 and CDC UT200 • can be executed under DOS, the Partition Supervisor, or CHAIN; or, except for 3770, JES, and RES, under RMS also; provides a menu display allowing the choice of emulator to be specified by a keyboard entry, as well as peripherals assignment;

uses the integral communication adapter and a synchronous modem to communicate at rates up to 4800 bps • requires 60K bytes of memory.

□ Program Development/Languages

Higher-level languages available for program development include SNAP/3 macro assembler, BASIC PLUS interpreter, DATABUS compiler, MULTILINK extension to DATABUS, DATAFORM, MULTIFORM extension to DATAFORM, FORTRAN, RPG II, and SCRIBE (text processing) under DOS only. Languages available under DOS and RMS include DATABUS (interpreter), DATASHARE extension to DATABUS to allow multiple users to access interpreter, COBOL, RPG PLUS, and CHAIN (command and job control).

SNAP/3 Macro Assembler • provides the means for a programmer to create either an absolute or relocatable object code program from a source file containing mnemonic operation codes; it includes conditional assembly and list control commands, extensive arithmetic operations, and a sorted cross-reference listing; source and object files may reside on tape or disk with a choice of local, remote, or servo printers for the output listing; a limited set of macros are built into the assembler and provide the programmer with single-line memory reference mnemonics which would otherwise require 2 or more instructions; double register load and shift count macros are also present; SNAP/3 is also supported by a library maintenance utility, a system library maintenance utility, and a linking editor for relocatable modules; SNAP/3 requires 60K bytes of memory; the linking editor and support utilities each require 16K bytes of memory.

BASICPLS • patterned after the Dartmouth BASIC language; uses an interpretive compiler to provide the Datapoint processor with an interactive compile/execute program capability • provides full screen control; data files are maintained on diskette; programs can be executed line-by-line as entered, or a program can be compiled and stored for later execution; provisions for floating-point arithmetic and 3-dimensional arrays are included • requires 60K bytes of memory.

FORTRAN • ANSI 1966 version 3.9 • provides full FORTRAN IV compatibility, except for complex numbers; supports ISAM data access; disk files are fully compatible with other languages in the Datapoint family • developed by Microsoft Corporation as a version of its FORTRAN 80.

DATAFORM • allows nonprogrammers to design forms for data entry applications; supports environments where large amounts of data need to be checked for validity during the data capture process; to use Dataform, the operator keys in the desired form on the screen and specifies the edit criteria; more than 15 edit criteria may be specified for each field including alpha, numeric, justification, and fill requirements; includes a high-level language for writing short field validation programs for applications requiring more complex verification of data that includes English sentence instructions, user-defined variables, redefined variables, IF statements, standard arithmetic functions, data manipulations, logical operators, and form interactions.

DF18SYS DATAFORM • provides a complete data entry operation producing a compatible data file ready to be transmitted or processed; files generated are compatible with other Datapoint packages.

DOS Multiterminal Data Entry • MULTIFORM allows 2 data stations to generate and use customized forms.

DOS SCRIBE • processing language and print utility used in conjunction with the general-purpose editor to provide an automatic typing and text processing system; also provides a way to create, update, and format text files; files are first created and corrected using the general-purpose editor; formatting is then done by imbedding SCRIBE commands within the text; commands allow the operator to perform operations such as carriage return, margin setting and tabstop setting; output may be directed to the CRT display screen or a printer • also used for the creation and production of computer-typed form letters and mailing labels; one file can be used for the form letter text and another for names and addresses; names inserted in the body of

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the text are automatically sized and surrounding body copy adjusted to fit • requires 16K bytes of memory.

MS SCRIBE • Text Processor for DOS (DSCRIBE) • used to create, update, and format text files; requires 16K-byte memory; available for use with SCRIBE, a technical manual preprocessor and table-of-contents generator to aid in writing technical manuals • features include automatic chapter and section numbering and conditional print suppression; the technical manual preprocessor and table-of-contents generator run on any SCRIBE system.

MS INDEX • Manual Index Pre-Processor used in conjunction with the technical manual preprocessor and table-of-contents generator to facilitate the creation of indices for technical manuals; the manual index preprocessor runs on any SCRIBE system.

DATABUS • Datapoint Business Language; high-level, commercial language used to write programs that perform any combination of data entry and editing, file inquiry and processing, and printing tasks; virtual memory techniques permit DATABUS reentrant programs to be as large as 32K bytes with 4K bytes of resident working storage; supports random, sequential, and indexed-sequential (ISAM) operations; provides extensive human interaction via commands in simple English (such as Display, Add, etc); comments may be inserted into programs at any point to increase readability; debug trace facility permits interactive debugging • available as interpreter and compiler • DATABUS programs compiled on larger Datapoint systems can be executed on the 1560 without change and can be downline loaded into the 1560 • interpreter runs under RMS or DOS; compiler runs under DOS.

DATASHARE • multiuser version of DATABUS; provides concurrent execution of 4 to 24 user programs controlled interactively from independent local or remote terminals; runs on disk-based system; supports Datapoint 8200, Teletype 33/35, and compatible asynchronous ASCII terminals or other Datapoint processors emulating these terminals; runs under DOS and RMS • executable code is divided into 256-byte, virtual, reentrant pages; working storage area for each program reserved in real memory; supports DATABUS programs only; each program is allocated up to 64K bytes of virtual memory; supports standard Datapoint random, sequential, or indexed-sequential files; files can be shared among users • provides capability to access/update ISAM files on remote Datapoint computer acting as DATASHARE terminal • supports Associative Index Method (AIM) for file access.

DATASHARE DSGEN • 3-module program generation system for development of DATABUS data entry/checking source program under DATASHARE; user designs data entry screen format by specifying options, via prompts and menu selection, for field and edit definitions, range checks, and table lookups.

DATASHARE DSTEXT • allows DATASHARE user to invoke many of the DOS utility functions to control job flow and system functions.

DBCPLUS • universal DATABUS Compiler for DOS systems; accepts programs written in the DATABUS language and translates them to a form that can be interpreted by the DATABUS Interpreter; results in DATABUS object programs that run on any system; can be transferred to another Datapoint processor and executed by any DATABUS or DATASHARE interpreter.

MULTILINK • extension to DATABUS language to allow concurrent communications with application execution.

ANSI 1974 COBOL Compiler • meets Level 1 specifications for the Nucleus, Table Handling, Segmentation, Random Access, and Sequential Access Modules of 1974 ANSI COBOL; Level 2 Table, Sorting, Library Facilities, name qualification, full continuation for words and literals, complete figurative constants, arithmetic expressions, and extended file options from Level 2 Nucleus, Sequential Access, and Random Access; Dynamic allocation/deallocation of diskette space is performed automatically and is transparent to the user; no modification of existing ANSI 1968 COBOL program is required to use ANSI 1974 COBOL; interactive extensions are provided that enable COBOL to function on a standalone processor; programs can

display, prompt, accept, convert and reformat input data, and process transactions as they become available; programs can be compiled and executed on standalone processors or on processors on ARC system; files created by COBOL are compatible with those created by DATABUS, RPG, BASIC, FORTRAN, and the DOS utilities; COBOL can utilize the beep and click sounds, plus the processor's special features include the 1920-character screen, 5 programmable function keys, field highlighting, blinking, and the interrupt key; precompiled subprograms can be called from within an interactive COBOL program, making structured programming easier to implement; a runtime debugger and the internal SORT feature are also available for use with COBOL • RMS version provides record buffering; does not support CRT screen blinking or cassette tapes; supports multiple-reel magnetic tape files, intertask communications via "pipes," disk printer files, and large programs on the 8600 or 8800 without segmentation; RMS COBOL file support allows deleting indexed or relative records, COPY statements freely placed, RELATIVE KEY synonymous to ACTUAL KEY, and sequential access to relative records.

RPGPLUS Compiler • runs under DOS or RMS • provides enhanced RPG II facilities similar to those provided for the IBM System/3, that include handling large record sizes and indexed-sequential file processing; produces object programs that run under DOS.

RPGFILTER Program will read a non-Datapoint RPG program from the diskette and make all possible changes to that program to make it compatible with Datapoint RPGPLUS • produces a converted program and flags all incompatibilities found which cannot be resolved.

CHAIN • command file processor supports structured, recursive job-control language • supports unattended job stream execution and file processing.

□ Office Automation

Datapoint's Integrated Electronic Office System (IEOS) consists of the Electronic Message System and Word Processing System combined with dispersed processors (such as DATASHARE) in an ARC system. Datapoint also offers an enhanced EMS Network Controller to allow IEOS users to reside on Teletype stations and TWX, and U.S. Telex networks.

The components for the integrated office are modular and flexible. The organization is the same as Datapoint uses with its dispersed processing and ARC systems; control is distributed without a host computer.

In February, 1984, Datapoint introduced its PRO-VISTA office automation software that runs in the RMS environment.

Electronic Message System (EMS) • a standalone, turnkey ARC system providing a high-speed message pick-up and delivery service in the office environment • implemented with an EMS Network Controller, office stations, and File Processor • the network controller and office stations operate as Applications Processors • office stations function as mail stops and workstations, and the controller functions as the post office • the network controller, which can handle 8 simultaneous data calls, uses a 20M-byte disk to store messages in transit • the File Processor stores and retrieves data relevant to the network as a whole • EMS uses standard ARC utilities such as the printer spooler to handle system printing • the network controller is a Datapoint 6600 Application Processor • Datapoint 1560 is the prime processor used as an office workstation • non-Datapoint terminals that are standalone devices with a controllable buffer can transmit to EMS via a communications line • provides EMS accounting reports by terminal, department, or project to user as well as to historical file • prints management reports periodically giving such data as variations in delivery speed and message length • a Telephone Directory Package provides maintenance of the EMS database.

MultiSite EMS • implemented using the LightLink for sites located within 2 miles of each other.

Enhanced EMS Network Controller • provides EMS user transparent access to Telex, TWX, and Teletype addresses • can also operate independently of IEOS and allow Telex, TWX, and

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Teletype users to communicate with each other • performs automatic dialing, protocol conversion, automatic routing, delivery to multiple addresses and management reporting • supports up to 1,000 addresses (mailstops); transmission speeds range from 50 to 4800 bps • runs on 6600 Series Advanced Business processor with 128K bytes of memory, disk, and local printer • can be customized using variables such as polling interval per mailstop, type of mailstop (Teletype, TWX, Telex, or Datapoint workstation), company name and department, overnight time range, and protocol answer-back strings.

Word Processing System • runs on any Datapoint processor with large screen (excludes 6600) • provides Associative Index Method (AIM) for filing and retrieval by content; 95% of key strokes are from "home" position; documents displayed in printed form • standalone system that can connect to ARC system.

PRO-VISTA • a new generation of office automation products for Datapoint; provides a new interface between user and the computer network; includes both hardware and software • hardware includes the VISTA-STATION 84 (8400 System), VISTA-82 (8220 or systems emulating 8220), and VISTA-PC (1200) • software includes VISTA-WORD, VISTA-GUIDE, MULTIPLAN, VISTA-MAIL, and VISTA-VIEW • other related software includes software support for the INX-PC card and for the VISTA-PC Network Interface.

VISTA-WORD • word processing software that is integrated with other VISTA software packages to provide information sharing as well as word processing • license fee may be waived when software is licensed with Datapoint hardware-

\$1,500 lcms

VISTA-GUIDE • user interface to the Datapoint RMS operating system through plain English command syntax, simple multiple choice, and fill-in-the-blank command scripts in VISTA-SCRIPT mode • user can tailor activities according to job function, security requirements, and unique requirements; HELP scripts allow system to speak the user's language • RMS provides resource sharing and networking provides for almost unlimited growth • license fee may be waived when software is licensed with Datapoint hardware:

1,500

MULTIPLAN • electronic spreadsheet that provides formulated, up-to-date information for decision making; performs labor intensive tasks; includes HELP facility for online tutorials; runs under RMS operating system 1.11 or later • license fee may be waived if licensed with Datapoint hardware:

1,500

VISTA-MAIL • electronic mail program that uses ARC to deliver messages throughout an organization; users may create and transmit their own documents as well as receive, print, store, and retrieve messages • provides HELP prompts; sender can use bulk distribution, define security measures, enclose MULTIPLAN models, and receive delivery confirmation and status:

1,500

VISTA-VIEW • provides windowing to allow user to view information for several applications simultaneously; applications can be independent of each other or information can be combined from several programs; provides up to 14 windows:

1,000

INX-PC Card Support • software to support IBM PCs attachment to ARCnet; includes DOS S/W to run on the 1590 included with INX-PC:

75

VISTA-PC Network Interface • software support for attaching VISTA-PC to ARC:

75

Other Facilities

Print File Queuing Package (SPOOL) • provides means to queue jobs to ARC unspooler; includes Datashare SPOOL command that can execute from Datashare port to allow Datashare programs to queue print jobs.

Print Unspooler (UNSPPOOL) • allows user to defer printing of Datapoint print file stored in a File Processor database; any ARC applications processor can submit jobs for printing.

Other DOS Utilities • other utilities provide useful programmer tools that are included with each release but must be ordered separately.

Alternate Drive DOS Boot (BOOT) • allows DOS to be booted from online disk drive; requires 16K-byte processor.

Enhanced Chaining Program Command (CHAINPLS) • improved compilation and execution capabilities of CHAIN: arithmetic computation, string manipulation, assigning default values, and access to status information.

Character Font & Keyboard Translate Table Editor (CHAREEDIT) • serves as editor for CHARSET/SYS font set definition file and KEYXLATE/SYS 1800/3800 keyboard translate table definition file for DOS.

8200 International Character Set Generator (CHARLD82) • set of programs build character set file, modify configuration in character set file, and load character set to an 8200 terminal.

DOS Multiplan • Microsoft's spreadsheet simulator • runs on 8600 with 96K bytes of memory • RMS version and 1560 DOS versions available • standalone or ARC support • under RMS:

\$1,500 lcms

Magnetic Tape Utility Routing (DCTAPE) • provides backup of critical disk data; users can transfer entire disk contents to 7- or 9-track tape and subsequently back to disk; DCTAPE will process files in byte-for-byte format or as text files; processed text files data can be recorded as ASCII, EBCDIC, or BCD character sets; processes both labeled and unlabeled tapes; supports ANS, IBM OS, and DOS labeling conventions; an advanced facility (user unit mechanism) is used for processing unsupported label formats and character sets.

HARDWARE

Terms & Support

Terms • available on purchase, monthly rental (90-day minimum), and 1/2/3-year lease • multiple unit purchases discounted according to published schedule, but discounts are on a per-order, not a step-quantity basis; most non-Datapoint manufactured items are not discountable • shipping and installation extra • installation minimum is \$195 in local support area, \$390 in remote zone for all but terminals, communication adapters, modems, and acoustic couplers, which have minimum installation charges \$95 locally and \$195 in remote zones • 10% prepayment discount and full-year price protection offered on annually billed maintenance • lease and rental prices do not include maintenance • peripherals and options not leased without processor • upgrades raise prices to those for the new configuration • purchased systems cannot lease upgrades • lease upgrades require minimum 1 year, and entire system reverts to 1-year lease rates unless lease is extended 2 or more years • upgrades also incur installation charges • equipment warranty is 30 days.

Support • basic service period is any continuous 9-hour period between 7:00 AM and 6:00 PM Monday through Friday; Datapoint's holidays excluded • extended service coverage available in some locales at rates of premium • extended plans available are Alternate Shift (continuous 8-hour period between noon and 1:00 AM), 16-hour (continuous, between 7:00 AM and 1:00 AM), 24-hour, 6-day (extends basic coverage through Saturday), 7-day, and holiday • Alternate Shift, 16-hour, and 24-hour plans available on 5/6/7-day basis • premiums for, respectively, Alternate Shift, 16-hour, and 24-hour coverage are 10%, 15%, 35% (5-day); 25%, 30%, 50% (added to 15% for 6-day); and 45%, 50%, 70% (added to 35% for 7-day); holidays always 5% extra premium • normal response in nonremote zones is one-half day after call • priority response available in extended service locales for premium of 12.5% for 4-hour response, 20% for 2-hour response • customer training facilities in 5 U.S. cities offer quarterly scheduled courses • customer service facilities in 176 U.S. cities, 36 offer extended coverage • premiums for remote-zone service are 30% (76 to 125 miles), 40% (126 to 175

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miles), 50% (176 to 225 miles), and 60% (226 or more miles) • maintenance for all systems except 1200 is on a monthly fee basis with 6% discount for prepaid annual fee; 1200 maintenance fees are charged on annual basis.

□ Systems Overview

Currently in the Datapoint systems line are the 1200, 1560, 3200, 6600, 8400, 8600, and 8800 series.

The 1200 Series is the VISTA-PC, a professional computer series based on the N-GEN from Convergent Technology. VISTA-PC runs under CTOS (Convergent Technology Operating System) MS-DOS and operates as part of the PRO-VISTA line of office automation products. The system includes a high resolution color monitor and supports from 256K to 1M bytes of memory, dual diskettes, 10M/20M bytes of disk storage, color plotter, and printer. It can emulate a Datapoint 8220 terminal; thus, it can interface to ARC through an ARC processor running the VISTA software under the Datapoint RMS software. Up to 6 VISTA-PCs can share resources and information. The systems are daisy-chained together using twisted-pair cable with 1 VISTA-PC operating as the master controlling the resources to be shared.

The 1560 is a Z80A-based microcomputer operating as a standalone system; it can also function within Datapoint's ARC local network. The system runs under DOS.H and a version of industry-standard CP/M, supports 64K- or 128K-byte RAM, and includes CRT, multipurpose keyboard, communication interface, and up to 40M bytes of storage. Through RS-232C interfaces, the 1560 can support 3 additional terminals and a printer. The 1561 model includes a RIM Interface Card for operations on ARC. The Multifunction Communication Interface is an option for SDLC operations.

The Datapoint 3200 Series is based on the Charles River Data Systems Universe Series, which in turn is based on the 12M Hz Motorola 68000. The systems are supermicros with performance of about 1.25 MIPS. The 3200 runs under UNOS, a UNIX look-alike operating system. The system also supports Informix, a relational database management system, EEX word processing package, MULTIPLAN spreadsheet, Datapoint Databus, and COBOL. The 3200 Series supports 1M to 8M bytes of memory, 32M to 120M bytes of disk storage, 45M-byte streamer tape, 2780/3780 Communications Controller, Data Terminal and keyboard (8230/8232/8220), 35-/300-cps or 300/600/1000-lpm printer, and INX-32 adapter to attach to ARC. The INX 32 with its INX and RMS INX Network Services Software allows the 3200 to be a database resource on ARC.

Datapoint 6600 Series includes 4000, 6000, and 6600 models; all based on the 6600 8-bit processor. Memory features parity checking. The 6600 features low-profile design with small integral CRT and a keyboard, and 2 "Philips" cassette tape drives (unless the 6600 is a 6000 ARC). Use can be generalized; standalone or in networks using DOS or RMS. The 67M-byte disk pack units can be attached. Tape can also be configured.

The Datapoint 8400 Series provides the VISTA-Station 84 line of processors that run VISTA-WORD, VISTA-MAIL, VISTA-GUIDE, VISTA-VIEW, and MULTIPLAN. The 8400, based on the 16-bit Intel 80286, is designed to operate as an application processor on ARC. It can perform data processing as well as office automation tasks such as word processing, electronic mail, financial modeling, and windowing. A standard VISTA-VIEW user window into ARC, allows the user to manage multiple active office applications simultaneously. The 8400 can interface directly to ARC and it supports up to 8 VISTA-Station 8230 terminals. The 8400 runs under RMS.

The 8600 contains all 6600 user mode instructions in an ergonomically designed package; indeed, it appears identical to the 8220 Ergonomic 8200 Terminal. Capable of generalized usage under DOS or RMS, the 8600 line also uses an 8-bit architecture processor, but with a standard RIM chip and able to use 10M-byte cartridge disks or 20M-byte nonremovable disks.

The 8800 is a 16-bit architecture system; it requires the RMS operating system. Its memory and disk capacities, up to 1M-byte and 1G-byte, respectively, top the Datapoint line. The 8800 is also the only cabinet-housed Datapoint processor, as befits its greater performance and power.

Datapoint offers packages for IBM PCs to allow them to participate in ARC networks. The PC 8220 software package allows the IBM PC, PC/AT, and PC/XT to emulate an 8220 terminal. The Intelligent Network Executive (INX-PC) is an adapter card that fits in an expansion slot in the IBM PC, PC/XT, or PC/AT. It includes a 1590 processor that runs the DOS operating system and a RIM to interface to ARC.

The PC 8220 software allows the IBM PCs to operate as Datapoint terminals under RMS and DOS with access to the Datapoint office automation, data processing, and communication resources.

The INX-PC allows users to link the IBM PCs together via the ARC network. The PCs can operate as information access workstations with access to the Datapoint DOS, Databus, MULTIPLAN, IEOS, and EMS applications, as well as centralized network services such as file, printer, and communication servers.

□ Packaged Systems

1200 (VISTA-PC) Systems (based on Convergent Technology N-GEN)

A basic 1200 system includes an 80186 processor with 256K bytes of memory with power supply. Memory can be expanded to 1M bytes. Disk storage can consist of 630K-byte diskettes and 10/20M bytes of Winchester disk storage. A VISTA-PC ARC module allows the 1200 to operate as a professional terminal on an ARC processor running RMS and the PRO-VISTA office automation software.

1211 System • includes 80186 processor, 256K-byte memory, dual 630K-byte diskettes, and power supply • requires 1224 Color or 1225 Monochrome Monitor; 1224 also requires 1221 Graphics Module • also requires CTOS and MS-DOS operating systems:

NA/NA/NA/NA mo	\$3,195 prch	\$385 maint
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1212 System • includes 80186 processor, 512K-byte memory, 10M-byte Winchester disk, 630K-byte diskette, and 2 power supplies • requires 1224 Color or 1225 Monochrome Monitor; 1224 also requires 1221 Graphics Module • also requires CTOS and MS-DOS operating systems:

NA/NA/NA/NA	4,995	489
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1214 System • includes 80186 processor, 256K-byte memory, and power supply • requires 1224 Color or 1225 Monochrome Monitor; 1224 also requires 1221 Graphics Module • also requires CTOS and MS-DOS Operating Systems:

NA/NA/NA/NA	2,195	192
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1560 Systems

A 1560 basic system includes a self-contained 1920-character CRT, typewriter-style keyboard, communications interface, and printer interface. The Z80A microprocessor supports 128K-byte system ROM, 64K bytes of RAM expandable to 128K bytes. The integral CRT features an 80-character by 24-line format and an inverse video feature that displays dots on a character-by-character basis, program-defined 128-character font, 60-frame-per-second refresh rate (using 50 Hz power), and 5x7 matrix character generator. The keyboard has a 55-key alphanumeric group, an 11-key numeric group, and 10 programmable control keys. A removable keyboard is optional. The system provides 2 serial channels, 1 supporting either synchronous or asynchronous communications, the other providing local printer support. A Multifunction Communication Interface (MFC) providing RS-232C-compatible serial channel is optional.

1540 System • includes 1560 processor with 128K-byte memory, removable keyboard, and 10M-byte removable and

MO: first figure is monthly charge for short-term rental; second is for 1-year lease; third is for 2-year lease; fourth is for 3-year lease; does not include maintenance. PRCH: purchase price. MAINT: monthly charges for prime shift maintenance within 75 miles of local service point. NA: not available. NC: no charge. Prices current as of March 1985.

Datapoint ARC Systems

1200, 1560, 3200, 6600, 8400, 8600 & 8800 Series

40M-byte fixed disk storage • maximum capacity 130M bytes of disk storage:

\$1,115/\$890/\$790/\$730 mo	\$16,450 prch	\$176 maint
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1545 System • includes 1560 processor with 128K-byte memory, removable keyboard, and two 10M-byte removable cartridge disk drives • maximum disk capacity of 100M bytes:

1,025/820/730/675	14,950	186
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1561 Application System • includes 1560 processor, 128K-byte memory with ARC Interface Card, integrated communications adapter (ICA), and removable keyboard:

245/195/170/160	3,995	59
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1562 System • includes 1560 processor, 128K-byte memory, 1M-byte diskette drive, ICA, and removable keyboard:

350/280/240/230	5,750	82
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1563 System • includes 1560 processor, 128K-byte memory, 2M-byte diskette drive, ICA, and removable keyboard:

400/320/275/260	6,500	92
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1567 System • includes 1560 processor with 128K-byte memory, removable keyboard, 20M-byte fixed disk, and 1M-byte diskette:

625/500/425/410	8,950	141
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1569 Application System • ARC Application Processor; includes 1560 processor with 128K-byte memory, ARC interface board, and removable keyboard • no options:

150/120/105/100	2,400	35
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3200 Systems (Based on Charles River Data Universe Series)

A basic 3200 includes 1M-byte memory, 4 serial ports, 1M-byte diskette, and 32M-byte hard disk in enclosure on single stand. The system can be expanded to 8M bytes on some configurations, 152M bytes of hard disk storage with 45M-byte streamer tape, up to 28 communication ports, 2780/3780 communication adapter, and up to 1000-lpm printers. The 3200 can interface to ARC through the INX adapter and operate as a network resource.

3231 Single Module • includes 1M-byte memory with parity checking, 4 serial ports, 1M-byte diskette, 32M-byte hard disk, enclosure, and single stand:

\$870/\$695/\$620/\$575 mo	\$15,430 prch	\$96 maint
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3232 Single Module • same as 3231 except with 8 additional serial ports for a total of 12 serial ports and 1 parallel port:

950/760/675/625	16,845	110
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3233 Double Module • same as 3231 except 45M-byte streaming tape is included and the system includes 2 enclosures and a double stand:

1,340/1,070/955/880	23,780	168
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3250 Double Module • same as 3233 but with following additions: 8 serial ports for a total of 12, 1 parallel port, and 128M-byte hard disk for a total of 152M bytes of disk storage:

2,260/1,810/1,605/1,485	40,130	310
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6600 Series Systems

4650 Datashare System • based on 6600 with 128K bytes of memory, 134M-byte dual disk pack subsystem, and MCA:

\$3,270/\$2,615/\$2,240/\$2,135 mo	\$42,640 prch	\$483 maint
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4654 ARC File Processor • based on 6600 with 128K bytes of memory, 2 60M-byte disk pack subsystems, and RIM adapter:

3,270/2,615/2,240/2,135	42,640	480
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4750 Datashare System • based on 6600 with 256K bytes of memory, 134M-byte dual disk pack subsystem, and MCA:

3,375/2,700/2,315/2,205	44,080	499
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4755 ARC File Processor • based on 6600 with 256K bytes of memory, 2 60M-byte disk pack subsystems, and RIM adapter:

3,375/2,700/2,315/2,205	44,080	496
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6010 ARC Application Processor • based on 6600 with 64K bytes of memory and built-in RIM:

530/420/355/345	8,495	84
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6020 ARC Application Processor • based on 6600 with 128K bytes of memory and built-in RIM:

585/465/395/380	9,395	92
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6040 ARC Application Processor • based on 6600 with 256K bytes of memory and built-in RIM:

690/550/470/450	11,195	108
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6600 System • includes 6600 processor with 128K-byte memory and cassettes:

720/575/415/375	12,200	180
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6640 System • includes 6600 processor with 256K-byte memory and cassettes:

830/665/475/430	14,000	196
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8400 Systems (VISTA-STATION-84)

The 8400 Systems implement the VISTA-Station-84, which can provide in conjunction with VISTA-Station-82, a powerful dual workstation configuration on ARC. The 8400 basic system includes the 80286 Processor, 512K-byte memory, ARC Interface, RS-422 serial port, and RS-232C Printer Port. It can be expanded to included 1M bytes of memory, an external 8-port MPCA for connection of 8400 to 8230 terminals, and up to 50M bytes of disk storage.

8412 Application System • includes 8400 processor, 512K-byte memory, ARC Interface, RS-422 Communications Port for 8230 or 8475, and RS-232C Printer Port:

\$480/\$385/\$345/\$315 mo	\$7,500 prch	\$62 maint
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8440 System • includes 8412 processor plus 10M-byte Removable and 40M-byte Fixed Disk; maximum 130M-byte disk capacity:

1,390/1,115/980/930	21,450	207
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8445 System • includes 8412 processor plus dual 10M-byte Removable Disks; maximum 100M-byte disk capacity:

1,395/1,115/980/930	19,950	217
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8450 Systems • includes 8412 processor plus 28M-byte fixed disk and 65M-byte streaming cartridge tape:

NA/NA/NA/NA	15,500	NA
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8600 Systems

8600 basic packaged systems are available as ARC Application Processors (without disk) or as systems capable of standalone operation, as RMS/ARC File Processor, or DOS/ARC Application Processor usage. They include an ergonomic CPU and keyboard, CPU with 128K bytes of memory, an integral RIM chip, and keyboard/display subsystem board with serial I/O channel for system printer.

8603 Applications System • 128K parity memory processor and 1 free slot for 128K memory expansion:

\$350/\$280/\$250/\$230 mo	\$5,950 prch	\$60 maint
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8605 Applications System • 256K ECC memory processor and 4 free slots for interface options:

510/405/365/335	7,500	80
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8627 Disk System • 8605 processor with 1M-byte diskette drive and 10M-byte fixed disk • maximum system disk capacity 40M bytes:

850/680/610/560	13,450	190
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8640 Disk System • 8605 processor with 10M-byte removable cartridge disk and 40M-byte fixed disk • maximum system disk capacity 130M bytes:

1,395/1,115/980/930	21,450	225
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8645 Disk System • 8605 processor with 2 10M-byte removable cartridge disk drives • maximum system disk capacity 100M bytes:

1,395/1,115/980/930	19,950	235
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8660 Disk System • includes 8605 processor with parallel bus adapter and dual 60M-byte removable disks (DOS only); 180M-byte maximum disk capacity:

2,250/1,800/1,600/1,480	39,950	369
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Datapoint ARC Systems

1200, 1560, 3200, 6600, 8400, 8600 & 8800 Series

8800 Systems

All basic 8800 systems include CPU and 256K bytes of memory, cabinet, 8811 Peripheral Processor, and 8220 Datastation system console; 20 card slots are provided.

8830 Application System • with 256K-byte memory, 8220 console, RIM module, MCPA module, and Peripheral Processor; uses 11 card slots:

\$1,475/\$1,180/\$1,040/\$985 mo \$24,500 prch \$228 maint

8840 Data Resource System • 256K-byte memory, 8220 console, DRP, 202M-byte disk, (67M-byte removable and 137M-byte nonremovable), and Peripheral Processor; uses 12 card slots:

3,515/2,815/2,480/2,345 59,950 492

8860 Standalone System • with 256K-byte memory, 8220 console, 2 Peripheral Processors, MCPA module, 67M-byte disk-pack disk, 202M-byte disk drive with 67M-byte removable and 135M-byte nonremovable; uses 13 card slots:

3,515/2,815/2,480/2,345 59,950 530

□ CPUs

1200 Processor & Options

1200 Processor • based on the Intel 80186 16-bit CPU; includes 256K bytes of RAM expandable to 1M bytes; supports up to 20M bytes of disk storage • provides a high-resolution color or monochrome monitor; color monitor allows graphic representation of information • provides Datapoint's VISTA interface, a user-friendly standard access facility into ARC systems • available only as part of packaged system.

1221 Graphics Module • required to provide graphics capability to color monitor:

NA/NA/NA/NA mo . \$575 prch \$67 maint

1223 Power Supply • unit for expansion of 1200 system:

NA/NA/NA/NA 240 NC

1224 Color Monitor • displays text and graphics in up to 8 colors simultaneously on a high-resolution screen (720x348 pixels):

NA/NA/NA/NA 850 67

1225 Monochrome Monitor • for 1200 system:

NA/NA/NA/NA 500 48

1230 Dual 630K-Byte Diskettes • with controller, dual system, double density:

NA/NA/NA/NA 1,250 163

1231 Winchester Disk Drive with Diskette • 10M-byte disk and 630K-byte diskette and controller:

NA/NA/NA/NA 2,800 297

1232 Winchester Disk Drive • 10M-byte disk with controller:

NA/NA/NA/NA 2,300 144

1233 Winchester Extension Drive • 10M-byte drive:

NA/NA/NA/NA 1,800 105

1240 Memory Expansion Cartridge • 256K bytes:

NA/NA/NA/NA 585 NC

1241 VISTA-PC ARC Module • allows 1200 to operate as VISTA-PC with access to ARC network; includes RIM:

NA/NA/NA/NA 620 57

1560 Processor & Options

1560 Processor • provides all control functions necessary to support keyboard, CRT, communications, disks; based on Z80A-based microprocessor and instruction set; 8-bit memory word length plus parity • controls microbus which provides interface between processor and up to 10 peripherals; microbus handles block data transfer rates of 175K bytes per second with maximum block length of 256 characters; processor controls data transfer over 8 bidirectional lines via 8-bit commands, 2 command strobes, an interrupt acknowledge strobe, and interrupt request line • available only as part of system configuration.

0252 ARCNET Interface Card • factory installed:

\$25/\$20/\$17/\$15 mo \$400 prch \$4 maint

0652 ARCNET Interface Card • field installed:

25/20/17/15 500 4

0253 Multifunction Communication Card • factory installed:

37/29/24/21 580 12

0653 Multifunction Communication Card • field installed:

37/29/24/21 630 12

0525 Single Data Dual Terminal Connector • for use with 1560 MFC option:

NA/NA/NA/NA 100 NA

0601 Ergonomic Base • for 1560 Processors:

NA/NA/NA/NA 175 15

3200 Processor & Options

3200 Processor • includes single/double module with 1M-byte parity memory, 1M-byte diskette, 32M-/152M-byte hard disk in single/double enclosure and 4 serial ports or 12 serial ports with 1 parallel port; some systems include streaming tape • systems can be expanded with the following options.

3209 TP308 Ports 5 to 12 • 1 parallel port and 8 serial ports:

\$90/\$70/\$65/\$60 mo \$1,560 prch \$14 maint

3210 TP308 Ports 13 to 20 • 8 serial ports:

80/65/60/55 1,415 14

3211 TP308 Ports 21 to 28 • 8 serial ports:

80/65/60/55 1,415 14

3215 1M-Byte Parity RAM • memory increment:

170/135/120/115 3,000 21

3218 2780/3780 Adapter • requires 2780/3780 software:

150/120/110/100 2,665 11

3219 INX-32 RIM • for connection to ARC; requires INX-32 Interface software:

115/90/80/75 2,000 14

6600 Processor & Options

6600 Processor • includes CPU, CRT display, and keyboard • also 2 read-write cassette tape decks, 1 for program storage and 1 for data storage.

CPU • implemented using 8-bit word microprocessor • implements full set of instructions (excluding multiply and divide) on 8-bit operands; about 0.6 MIPS average execution rate; extends instruction set with double length (16-bit) integer multiply and divide; execution time about 60 microseconds for multiply and about 70 microseconds for divide; also implements instructions for byte string and decimal field operations up to 16 bytes long; add/subtract only arithmetic operation implemented; uses 2 sets of general-purpose registers and 2 sets of condition codes: 1 set used in Alpha mode and the other set used in Beta mode for foreground/background processing • uses base register and sector table to provide a memory management system that protects 4K-byte segments of memory with access/write enable codes and expands addressing to maximum of 256K bytes • CPUs are marketed in system configurations only.

CRT Display • integral to CPU • 7x3.5-inch screen; displays 960 characters in 12 lines, 80 characters per line; 128-character set; 5x7 dot-matrix character generation; blinking cursor, page scroll up and down, and single control line erasure; direct processor control of CRT functions.

Keyboard • integral to CPU • 55-key alphanumeric group, 11-key numeric pad, and 5 system control keys; processor controls transfer of characters and audio feedback (click); programmable attention sound (beep).

Cassette Tape Decks • 2 read-write tape decks; accept Norelco-type cassettes; 47 cpi; bidirectional; processor-controlled data transfers, direction, and rewind; capacity 130,000 characters • character transfer time 2.8 milliseconds; rewind time 40 seconds.

Datapoint ARC Systems

1200, 1560, 3200, 6600, 8400, 8600 & 8800 Series

8400 Processor & Options

8400 Processor • built around the Intel 80286 microprocessor with 512K-byte memory, ARC interface, RS-422 serial port, and RS-232C printer port • can be expanded to 1M bytes of memory and 50M bytes of disk storage.

8230 Ergonomic Terminal with Printer Port • RS-422 port for 8412 only:

\$130/\$105/\$90/\$85 mo	\$1,895 prch	\$22 maint
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8406 Microbus Interbus • for 8400 disk support:

65/50/45/45	1,100	20
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8408 Memory Upgrade • for 8412, 512K-byte increment of ECC memory:

100/80/75/65	1,750	13
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8409 1M-Byte Memory • for 8412; uses 1 board and 1 slot total; for field installations, new memory subsystem installed and 512K-byte memory returned to Datapoint:

215/170/150/140	3,750	13
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8475 MPCA • 8-port external, connects 8400 to 8230 (RS-422):

60/45/40/40	1,000	9
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0639 Connector Kit • 8412 to 8230:

NA/NA/NA/NA	25	NC
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0704 Cable • 8412 to 8230, plenum rated, 6 twisted pair, \$2.50 per foot:

NA/NA/NA/NA	NA	NC
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8600 Processor & Options

8600 Processor • 8-bit microprocessor on 3 daughterboards (CP/RIM, CP/ALU, CP/CONTROL) interface with each other and to common bus or motherboard, and generate RIM connection to ARC system • interface to memory and devices is via other daughterboards attached to common bus • instruction set is downward compatible with the Datapoint 6600 • integral ergonomically designed CRT monitor and keyboard • 2 models; 8601 cannot attach peripherals (except printer) or communications devices (except ARC, which is built-in); 8602 can attach 1 disk subsystem and 3 Multiport Communication Adapters and 2 Multifunction Communication Adapters • Model 8601 can be upgraded to 8602 • marketed in system configurations only.

8600 Processor Options • options described below are available field or factory installed • prices shown are for field-installed options, which are higher than for factory installed • factory-installed options are available on rental/lease • installation charges also apply.

0605 PIO Interface • permits attachment of 9301 20M-byte disk with backup cartridge tape; field installed:

\$75/\$60/\$55/\$50 mo	\$1,200 prch	\$20 maint
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0606 Microbus Interface • permits attachment of 9310 10M-byte cartridge disk and 1M-byte diskette; field installed:

75/60/55/50	1,200	20
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0612 Tilt/Rotate Base • for 8600 and 8220:

NA/NA/NA/NA	100	15
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0091 PIO Disk Interface • factory installed:

75/60/55/50	1,100	50
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0093 Microbus Disk Interface • factory installed:

75/60/55/50	1,160	50
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0655 Parallel Bus Adapter • for DOS only • field installed:

70/55/50/43	1,100	5
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0139 Parallel Bus Adapter • same as 0655 but factory installed:

70/55/50/45	950	45
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5202/5203/5273 Keycap Kit • for 8230 or 8600 with VISTA/VISTA and 3270/Word Processing and 3270 inscriptions:

NA/NA/NA/NA	48	NC
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5279 Keycap Kit • for 8220 or 8600 universal keyboard without

word processing or 3270 inscription:

NA/NA/NA/NA	46	NC
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5287 Keycap Kit • for 8220 or 8600 with (029) data-entry keyboard inscriptions:

NA/NA/NA/NA	95	NC
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9421 ARC Interface (RIM) • additional interface; maximum of 3 per 8605 and 1 per 8602:

60/45/40/40	995	18
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8800 Processor & Options

The Datapoint 8800 uses multiple internal data/control paths to interconnect system components. A Main Bus interlinks the CPU, main memory, and 8811 Peripheral Processors. A DMA Channel supports direct main memory access by the CPU, disk, and communications devices. In addition, multiple Peripheral Control Buses are used to interface device controllers.

Separate Peripheral Control Buses are dedicated to the CPU and each 8811 Peripheral Processor. The CPU's Peripheral Control Bus connects to a System Adapter and 5500 I/O Adapter. The System Adapter is used to interface an 8200 Datastation operator console and DC 150 Cartridge Tape Drive. The 5500 I/O Adapter supports magnetic tape, printer, and punched card device attachment.

Peripheral Control Buses associated with 8811 Peripheral Processors interface all other devices, including 8806 Multiport Communications Adapters, 8809 Multifunction Communications Adapters, 8807 Resource Interface Modules (RIM), and a Disk Interface. 8806 Multiport Communications Adapters each support up to 8 interactive terminals; 8809 Multifunction Communications Adapters are used for telecommunications; 8807 Resource Interface Modules connect an 8800 system to an ARC network (see Configurations below). The Disk Interface is an 8-drive controller. Scheduling and control functions for these devices are performed by the connected 8811 Peripheral Processor.

System components described above are implemented on circuit boards that are housed in the 8800 main cabinet. A total of 20 circuit board slots are provided.

8800 Processor • 16-bit architecture; microprogrammed; interfaces with Main Bus, DMA channel, and Peripheral Control Bus; instruction set is downward-compatible with the Datapoint 6600 • 16-key pad and 16-digit alphanumeric display provided for diagnostics; 8200 Datastation is used for operator console/system control functions • requires 3 circuit board slots.

8891 8800 Disk Expansion Kit • required for drive 5:

NA/NA/NA/NA mo	\$300 prch	NC maint
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□ Memory

1200 Memory • basic system includes 256K bytes expandable to 1M bytes using 256K-byte cartridges; see 1200 Processor and Options section.

1560 Memory • 128K bytes of RAM memory is included in 1560 packaged system; organized in 9-bit words (8 data and parity); total 12K ROM is used for initialization, tasking, communications, debug program, keyboard/display handlers, initial program boot from disk/diskette; 630-nanosecond memory cycle time; 300-nanosecond access time.

4000 & 6000 Memory • normally integrated into CPU and not available in optional modules except as indicated below • 248K bytes maximum • byte parity • 600-nanosecond cycle time.

0507 Memory Expansion Kit • expands a 6020 Application Processor or 6600 system from 128K bytes to 256K bytes of user memory:

\$105/\$85/\$75/\$70 mo	\$1,800 prch	NA maint
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0535 Memory Expansion Kit • expands 6000 and 6600 systems from 64K to 128K bytes:

55/45/40/35	900	NA
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0536 Memory Expansion Kit • expands a 6010 or 6600 system Application Processor from 64K bytes to 256K bytes of user

Datapoint ARC Systems

1200, 1560, 3200, 6600, 8400, 8600 & 8800 Series

memory:

160/130/115/105	2,700	NA
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8400 Memory • processor includes 512K-byte ECC memory expandable to 1M bytes using 512K-byte increment or substituting 1M-byte board for 512K-byte board • see 8400 Processor and Options section.

8600 Memory • 256K, 512K, 768K, or 1M bytes on 1 or 2 boards • byte parity • 750-nanosecond read/write cycle, 300-nanosecond access time, 250-nanosecond refresh at 2-millisecond intervals.

0602 Memory Expansion • field-installed 128K-byte parity memory for 8600:

85/65/60/55	1,600	12
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0656 ECC Memory Upgrade • field-installed 512K-byte ECC memory for 8605, 8627, 8634, 8640, and 8645; replaces 256K-byte memory board:

120/95/85/90	2,800	20
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0661 ECC Memory Upgrade • 512K-byte upgrade for 8605; maximum 2 memory board per processor:

120/95/85/80	2,800	13
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0102 Memory Expansion • same as 0602 but factory installed:

85/65/60/55	1,200	12
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0141 Memory Expansion • same as 0656 but factory installed:

120/95/85/80	1,800	10
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8800 Memory • 256K to 1M bytes in 128K-byte increments; multiple-bit error checking and correction; 16-bit word length • DMA channel permits CPU, Disk Interface, and Resource Interface Module (RIM) to directly access main memory • 256K-byte minimum memory configuration includes memory controller and requires 3 circuit board slots.

8801 Memory Expansion • 128K-byte memory increment • requires 1 circuit board slot; up to 6 per processor:

94/75/67/63	1,400	12
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I/O

1200 I/O • supports dual diskettes, 630K-byte, 10M-byte Winchester drive and controller, 10M-byte disk extension, ARC module, plotter, and printer.

1560 I/O • microbus handles block data transfers on 8 bidirectional lines at data rates 175K bytes per second with maximum block lengths at 256; provides interface between processors and up to 10 peripheral devices, such as printers, disks, diskettes.

3200 I/O • single module supports 4/12 serial ports, 1M-byte diskette, 32M-byte disk, 4 serial ports, and 1 parallel port; double module adds 120M-byte disk and 45M-byte streamer tape in second module; both systems support up to 28 ports added in 8-port increments, 2780/3780 adapters, printer (35 cps to 1000-lpm model), and 1 NX-32 module for connection to ARC.

6600 I/O • high-speed bus, 1.7M bytes per second • byte-parity checked/generated on all I/O • interfaces to Datapoint disks and to IBM System 360/370 byte-multiplexer channel.

8400 I/O • includes 1 serial port for connection of 8230 or an 8475 8-port MPCA for connection of 8230 terminals and one RS-232C printer port; supports up to 50M bytes of disk storage.

8600 I/O • keyboard/display subsystem board interfaces/controls CRT monitor and console keyboard; also provides attachment for system printer • either Microbus Interface or Peripheral Interface board, packaged with system or available to 8602 control/interface, respectively, cartridge disk/diskette or nonremovable disk/backup tape.

8800 I/O • noncommunications I/O interface units for the Datapoint 8800 include the integral System Adapter, the 5500 I/O Adapter, and a disk interface (included with a disk subsystem).

System Adapter • supports 8200 Datastation operator console and DC 150 Cartridge Tape Drive • included in packaged systems.

5500 I/O Adapter • supports up to 4 magnetic tape, printer, and/or punched card peripherals • included in packaged systems.

Communications

1200 Communications

The 1200 system includes 2 RS-232C ports that can be used to connect modems for data communication links or printer. Data rates on RS-232C ports are up to 19.2K bps. The IBM 2780/3780 and BSC 3270 emulation consists entirely of software. The Datapoint 8220 terminal emulation also consists entirely of software.

The 1200 can also connect to the ARC through the VISTA-PC ARC module, which is supported by the VISTA-PC ARC software.

The 1200 system can also run the Datapoint DATAPOLL software for communication with other remote Datapoint systems.

1560 Communications

Two channels are included with each system. First channel supports synchronous or asynchronous, full- or half-duplex communications under program definition and control. Character codes can also be defined under program control, with ASCII or EBCDIC typical. Data rates are programmable from 50 to 9600 bps asynchronous. An external clock can be used for synchronous operation; typically used for communications with a host system. The second channel is typically used for basic local printer support under processor control. It may also be used as a second communications channel.

The communications module is self-contained within the basic unit and allows for communication under several disciplines. The module is fully buffered with a 128-character buffer on transmit as well as receive, providing automatic testing of received line signal detector and clear-to-send and Cyclical Redundancy Check (CRC) error checking on both transmit and receive when needed; on transmit the CRC bytes are automatically inserted in the data block.

A 4-port Multiport Communications Adapter (MPCA) is incorporated in the controller of a 9320 Cartridge Disk Subsystem, which can be used with the 1560.

3200 Communications

The 3200 system can support from 4 to 12 serial ports on single module systems and from 4 to 28 serial ports on double module systems. Both systems can support 1 parallel port.

The 3200 also supports the INX-32 RIM board for connection to ARC. The INX-32 in conjunction with the INX-32 Interface software allows the 3200 to operate as a resource computer on ARC.

See 3200 Processor and Options section for the listing of the individual communication modules.

6600 Communications

For the 6600-based systems, Datapoint supplies 4 hardware/software channel adapter products: Direct Channel Interface Option (DCIO), Multilink Channel Interface (MLCI), Datapoint Attached Support Processor (DASP), and Channel Input/Output Unit Record Utility (CHIOUR). Using the DCIO facility, the IBM mainframe interfaces to an ARC system through a Series 6600 processor. The IBM mainframe perceives ARC as 8 pairs of unit record devices performing input/output operations. The ARC system perceives the IBM mainframe as another Applications Processor.

The MLCI facility allows a Datashare system, which can be an applications processor in an ARC system, to interface with the IBM mainframe in either an interactive or medium-speed batch mode. Like DCIO, MLCI emulates IBM Unit record equipment.

The DASP facility was designed to provide remote batch communications to an IBM mainframe without teleprocessing facilities. DASP looks like peripherals to the IBM mainframe. DASP can receive/transmit data to/from 4 remote sites simultaneously, read, print, and punch records from the byte

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multiplexer channel, and handle alternate console communications.

The CHIOUR directly emulates up to 16 IBM unit record devices.

9426 Channel Adapter, Freestanding • provides interface between Datapoint 6600 I/O bus and the IBM-compatible mainframe byte multiplexer channel:

\$413/\$330/\$290/\$275 mo	\$7,800 prch	\$75 maint
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9427 Channel Adapter, Console • same as 9426 except available in console:

413/330/290/275	7,800	75
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Datapoint provides both asynchronous and synchronous communications facilities for 6600-based systems.

9462 Multiport Asynchronous Communications Interface • provides 8 ports to connect devices directly or via modems and telephone lines from remote locations; supports full-duplex transmission at up to 300 bps with 202-type modem or up to 9600 bps with RS-232C modem or device; provides auto-dial/-answer • maximum of 3 per 6600 system • tabletop or wall mounting • connects to I/O bus • available as refurbished equipment only:

NA/NA/NA/NA	350	19
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9481 Multifunction Communications Adapter • transfers large amounts of data at high speeds • operates in full-duplex mode compatible with SDLC protocol, in half-duplex mode compatible with BSC or in program-controlled half-duplex mode for general synchronous operations • contains 63-byte transmit and receive buffers • operates at up to 40,800 bps • supports auto-call devices • provides comprehensive error checking including VRC, LRCC, polynomial cycle redundancy character generation/checking • compatible with RS-232C or CCITT V.24 synchronous modems • a chassis; requires mounting • available as refurbished equipment only:

NA/NA/NA/NA	1,000	30
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8400 Communications

The 8400 includes an RS-232C communications interface to a local serial printer and an RS-232C or RS-422 serial communication interface to a terminal, data communication line, or an 8475 MPCA 8-port external adapter. The RS-422 port can connect the 8230 terminal (VISTA Station-82).

8600 Communications

0603 Multiport Communications Adapter • supports up to 4 local and/or remote interactive terminals • full-duplex transmission at up to 19,200 bps using RS-232C modem/terminal • maximum of 3 0103s per 8602 processor • field installed:

\$50/\$35/\$33/\$30 mo	\$1,200 prch	\$9 maint
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0103 MPCA • same as 0603 except factory installed:

50/35/33/30	1,000	9
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0604 Multifunction Communications Adapter • single-line communications controller • operates in full-duplex mode with separate reverse channel using Bisync, SDLC, HDLC, ADCCP, or GENSYNCH protocols • asynchronous operation as well • RS-366 and RS-366A auto-call compatible • RS-232C or RS-422/423 compatible • speeds up to 56K bps • maximum of 2 per 8602 processor • field installed:

75/60/55/50	1,800	18
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0104 MFCA • same as 0604 except factory installed:

75/60/55/50	1,500	18
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8800 Communications

8806 Multiport Communications Adapter • supports up to 8 local and/or remote interactive terminals • full-duplex transmission at up to 9600 bps using RS-232C modem/terminal or up to 300 bps using AT&T 202-type modem; auto-dial/-answer • maximum of 3 8806s per standalone or ARC Application Processor system • uses 1 slot:

\$105/\$84/\$74/\$70 mo	\$2,000 prch	\$18 maint
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8807 RIM Modules • 1 card, up to 5 per 8830 and 8840 and 6 per

8860:

79/63/56/53	1,500	15
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8809 Multifunction Communications Adapter • single-line communications controller • operates in full-duplex mode using SDLC, in half-duplex mode using BSC, or in program-controlled half-duplex mode for general synchronous operations; up to 40,800 bps; supports RS-232C and CCITT V.24 modems • maximum of 3 8809s per system • uses 1 slot:

131/105/93/86	2,500	18
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8811 Peripheral Processor • provides scheduling and control functions for 8806 Multiport Communications Adapters, 8801 Resource Interface Modules, and 8809 Multifunction Communications Adapters • any number of the above devices (within system constraints) can be attached to an 8811 Peripheral Control Bus; system I/O throughput can be increased by using multiple 8811s • uses 1 slot • up to 4 per processor:

126/101/89/84	1,000	35
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General Communications Devices

9400 Asynchronous Communications Adapters • single-line, available as indicated below • 110 to 2400 bps • mounts on desktop or wall, connects to modem and to I/O bus • nonself-powered.

9400 Asynchronous Adapter • with EIA interface:

\$48/\$36/\$34/\$32 mo	\$910 prch	\$17 maint
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9401 Asynchronous Adapter • with 103-compatible modem:

79/63/56/53	1,500	21
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9402 Asynchronous Adapter • with 202-compatible modem:

79/63/56/53	1,500	21
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9404 Synchronous Communications Adapter • single-line • 110 to 2400 bps • mounts on desktop or wall, connects to modem and to I/O bus:

48/38/34/32	910	17
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9481 Multifunction Communications Adapter (MFCA) • for synchronous communication • also available as refurbished product:

103/82/72/68	1,950	30
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Refurbished Adapter:

NA/NA/NA/NA	1,000	30
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0572 Upgrade Kit • for 9481 mode prior to 2/81; enables 9481 to run with RMS:

NA/NA/NA/NA	NA	NA
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9455 Multiple Communications Adapter Housing • chassis providing 4 card slots for printed-circuit boards that are versions of 9400 series single-line communications adapters listed above:

121/97/85/81	2,300	32
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9451 Option Adapter Card • equivalent to 9400; uses 1 slot:

38/30/26/25	710	17
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9452 Option Adapter Card • equivalent to 9401; uses 2 slots:

69/55/48/46	1,300	17
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9453 Option Adapter Card • equivalent to 9402; uses 2 slots:

69/55/48/46	1,300	17
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9456 Option Adapter Card • equivalent to 9404; uses 2 slots:

41/33/29/28	790	17
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Modems & Data Access Arrangements

9478 Datashare Modem • with Internal Data Access Arrangement (DAA) • split-speed modem; 1200/150 bps:

\$53/\$42/\$37/\$35 mo	\$995 prch	\$23 maint
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9479 Datashare Originate-Mode Modem • with Internal DAA • split-speed modem; 1200/150 bps:

53/42/37/35	995	22
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9445 DAA • does not have auto-dial/-answer:

8/7/6/5	175	2
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9446 DAA • includes auto-dial/-answer:

14/10/9/8	250	3
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Local Area Network Communications

Connection of Datapoint devices to the Datapoint ARCNET is via the Resource Interface Module (RIM), which is either standard or optional for the package, as follows. Datapoint also offers an interface to ARC for the IBM PC. It is called the INX-PC and allows IBM PCs, XTs, and ATs to access ARC DOS resources. The INX-PC includes a 1590 processor that allows the IBM PC to operate as a corporate access workstation in an RMS ARC environment.

1200 Series • connects to ARC through an ARC module or it can emulate 8220 terminal and connect to ARC through an ARC 6000 or 8000 processor.

1560 Systems • RIM is included with 1561 system package.

3200 Series • connects to ARC through Intelligent Network Executive (INX-32), which includes RIM.

4000 Series • RIM is included in 4000 ARC packages.

6000 Series • RIM is included in 6000 ARC packages.

8400 Series • ARC interface included in basic packaged system.

8600 Series • a RIM chip is standard.

8800 Series • a RIM card (1-slot) is optional; up to 6 can be used; 8830 and 8840 systems include 1 RIM card.

8807 RIM Module • for 8800 series:

\$79/\$63/\$56/\$53 mo	\$1,500 prch	\$15 maint
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IBM PC, PC/XT & PC/AT • through Intelligent Network Executive (INX)-PC adapter card that fits into slot in PC; includes a 1590 processor and RIM to interface to ARC; Datapoint calls this a "door" into ARC.

0740 INX-PC Adapter Card • includes installation guide; requires INX-PC software:

NA/NA/NA/NA	695	76
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80954 PC8220 • includes keyboard overlay, software, and User's Guide to a look like allow PC to Datapoint 8220 terminal:

NA/NA/NA/NA	175	NC
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ARC System Components

9483 RIM Adapter • basic RIM adapter module; for 6600:

\$100/\$80/\$70/\$65 mo	\$1,650 prch	\$16 maint
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9484 8-Port Active Hub • available as refurbished equipment:

NA/NA/NA/NA	350	12
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9485 Passive Hub • 16 ports:

NA/NA/NA/NA	125	NC
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9486 8-Port Expander • for 9484:

40/32/27/26	650	5
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9489 8-Port Active Hub • nonexpandable:

40/33/29/27	675	8
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3460 RG62 Coaxial Cable • plenum rated; per foot:

NA/NA/NA/NA	105	NC
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3461 50-Foot Coaxial Cable • with connectors; plenum rated:

NA/NA/NA/NA	90	NC
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3462 Connector Kit • for 3460:

NA/NA/NA/NA	10	NC
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LightLink • a self-contained bidirectional system that permits transmission of data in full-duplex mode between 2 ARC systems up to 1 mile apart at 2.5M bps • interfaces directly to the interprocessor bus • designed for installation on a rooftop or adjacent to an exterior window • uses modulated infrared light • requires no changes to ARC hardware or software • includes microprocessor-controlled transmitter and receiver at each end • looks to each ARC system like an extension of the interprocessor

bus • includes a multiplexed subchannel for audio and low-speed data for installation.

9530 LightLink • transceiver pair:

1,350/1,100/750/675	14,000	195
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9533 Pedestals • pair, for 9530:

80/65/60/55	1,000	NC
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9535 Outdoor Kit • for 9530; single; NC when ordered with 9530:

NA/NA/NA/NA	600	NC
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□ Disk

Disk Drives for 1200

The 1200 supports dual 630K-byte diskettes with controller and 10M-byte Winchester Disk Drive with Controller plus one 10M-byte extension drive for maximum of 20M bytes of Winchester disk storage.

Disk Drives for 1560

1402 Diskette Expansion Module • for 1560 • adds pair of 0.5M-byte diskette drives to existing system • single-sided • 256 bytes per sector; 26 sectors per track; 77 tracks per diskette • 10-millisecond track-stepping seek plus 50-millisecond settling • 83-millisecond average rotational latency • attaches to Microbus:

\$188/\$150/\$125/\$120 mo	\$3,000 prch	\$42 maint
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1403 Diskette Extension Module • for 1560 • adds a pair of 1M-byte diskette drives in housing • double-sided • same specifications as 1402 except there are 52 sectors per (2-track) cylinder:

256/205/175/165	4,150	49
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1404 Diskette Extension Module • for 1560 • same as 1403, but only 1 drive:

188/150/125/120	3,000	42
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931X Winchester Disk Drives • 5.25-inch drive with either 10M or 20M bytes of data storage • drives provide 256 bytes per sector, 48 sectors per track • rotational speed for the drive is 3600 rpm; rotational delay is 8.33 milliseconds • average head positioning time is 85 milliseconds • attaches to Microbus.

9315 Winchester Disk Drive • provides 10M bytes of data storage on one platter and 1M-byte diskette:

525/420/365/330	5,495	90
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9316 Winchester Disk Drive • provides 10M bytes of data storage on 2 platters for 1560 or 862X:

225/180/150/135	3,250	55
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9317 Winchester Disk Drive • 20M-byte Winchester drive and 1M-byte diskette:

525/420/365/330	7,495	100
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9324 Dual Removable Cartridge Disk • 10M bytes per cartridge; to upgrade 1561 to 1545 or 8605 to 8645 • requires Microbus Interface:

1,025/820/710/640	12,500	135
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9325 Removable Cartridge Disk & Fixed Disk • 10M bytes removable and 40M bytes fixed; used to upgrade 1561 to 1540 and 8605 to 8640 • requires Microbus Interface:

1,240/990/860/775	14,150	125
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9326 40M-Byte Extension Disk Module • for 154X and 864X systems; includes cabinet and cable:

470/375/335/315	7,600	75
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9327 80M-Byte Extension Disk Module • for 154X and 864X systems; includes two 40M-byte fixed disks in cabinet:

790/630/555/525	12,700	120
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0600 40M-Byte Fixed Disk Extension Unit • upgrades 9326 disk to 9327:

NA/NA/NA/NA	6,500	45
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Disk Drives for the 3200

The 3200 includes a 32M-byte hard disk and 1M-byte in single

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module systems and 32M-/152M-byte disk with streaming backup tape.

3224 120/160 Disk Upgrade • upgrades 3233 Double Module system with 32M-byte disk to 3250 Double Module with 152M-byte disk:

<u>\$925/\$740/\$660/\$610 mo</u>	<u>\$16,430 prch</u>	<u>NA maint</u>
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3235 Single Module to Double Module • upgrades 3231 Single Module to 3233 Double Module system; adds 120M bytes of disk storage plus streaming tape:

<u>1,445/1,155/1,025/950</u>	<u>25,615</u>	<u>NA</u>
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3236 Single Module to Double Module Upgrade • adds streaming tape; upgrades 3231 Single Module to 3233 Double Module System:

<u>430/345/305/285</u>	<u>7,630</u>	<u>NA</u>
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Disk Drives for the 6600

939X Disk Pack Drives • storage module type drive • employs 3 platter top loading pack with 5 data surfaces and 1 servo surface • 256 bytes per sector, 64 sectors per track, 16,384 bytes per track, 785 tracks per surface (384 tracks per inch) • 5 tracks per cylinder, 785 cylinders, and 81,920 bytes per cylinder • total formatted capacity is 60,211,200 bytes • rotational speed is 3600 rpm; rotational delay is 8.33 milliseconds • average head positioning time is 30 milliseconds; maximum is 55 milliseconds • data transfer rate is 1.209M bytes per second from the buffer • basic configuration consists of console table-mounted intelligent controller with 10K buffer and 2 drives mounted in standalone pedestal cabinet.

9390 Disk Pack Subsystem • consists of two 67M-byte drives and controller:

<u>\$2,695/\$2,155/\$1,845/\$1,760 mo</u>	<u>\$35,160 prch</u>	<u>\$284 maint</u>
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9391 Add-On Drive • consists of 67M-byte drive in a pedestal cabinet • requires 9390:

<u>975/780/670/640</u>	<u>15,950</u>	<u>112</u>
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Disk Drives for the 8400

All of the 8400 systems except the 8412 include integral disk drives. Extension disks are available to add storage to the maximum allowable capacity:

9325 40M-Byte Extension Disk • all fixed:

<u>\$470/\$375/\$335/\$315 mo</u>	<u>\$7,600 prch</u>	<u>\$75 maint</u>
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9327 80M-Byte Extension Disk • dual 40M-byte fixed disks:

<u>790/630/555/525</u>	<u>12,700</u>	<u>120</u>
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Disk Drives for the 8600

931X • see Disk Drives for 1560 section for details.

930X Fixed Disk with Cartridge Tape Backup • basic subsystem includes 20M-byte fixed disk, 20M-byte removable cartridge tape for backup, and controller; up to 4 20M-byte add-on fixed drives can be configured with the controller • fixed disk has 256 bytes per sector, 24 data sectors per track (plus 3 spares), 6144 bytes per track, 549 data tracks per surface plus 1 diagnostic track • fixed disk has 3 platters, 6 data surfaces with 6 tracks per cylinder and 549 cylinders per drive • total drive capacity is 20.24M bytes • rotational speed is 5520 rpm; rotational delay is 5.435 milliseconds • track to track, average, and maximum head positioning times are respectively 15, 75, and 100 milliseconds; maximum start time is 20 milliseconds • data transfer rate is 725,250M bytes per second • cartridge backup is 9-track; tape speed is 60 lps; recording density is 5208 bpi • record size is 6144 bytes • tape data transfer rate is approximately 39,064 bytes per second.

9301 Disk Tape Subsystem • 20M-byte disk and 20M-byte cartridge tape; to upgrade 8605 to 8634:

<u>\$1,245/\$995/\$865/\$780 mo</u>	<u>\$17,850 prch</u>	<u>\$150 maint</u>
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9302 Add-On Fixed Disk Drives • provides two 20M-byte drives in a cabinet plus 2 logic cards for installation in 9301 cabinet:

<u>1,220/975/850/765</u>	<u>17,500</u>	<u>135</u>
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9303 Add-On Fixed Disk Drive • provides one 20M-byte drive in

a cabinet plus 1 logic card for installation in 9301 cabinet:

<u>700/555/485/435</u>	<u>9,995</u>	<u>70</u>
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9304 Add-On Fixed Disk Drive • provides one 20M-byte drive for installation in 9303 cabinet plus 1 logic card for the 9301 cabinet:

<u>555/445/385/345</u>	<u>7,950</u>	<u>65</u>
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Disk Drives for the 8800

Disk devices for 8800 standalone and Data Resource Processor system configurations include an 8-drive Disk Interface, 67M-byte/135M-byte removable/fixed-disk drive, and 135M-byte fixed-disk drive. Minimum configurations include the Disk Interface, and 1 removable/fixed-disk drive. Up to 6 additional disk drives are optional for a maximum disk storage capacity of 1080M bytes.

Disk Interface • controller supports one 67M-byte/135M-byte removable/fixed-disk drive and up to six 135M-byte fixed-disk drives • performs multiple-sector read/write operations; detects up to 10-bit errors; interfaces with DMA channel.

93XX Fixed/Removable Disk Drives • 67M-byte removable specifications include 6220-bpi inner track bit density, 384-track-per-inch track density, 315 bytes per sector, 64 sectors per track, 16,384 bytes per track, 67,420,160 bytes per pack (formatted) and 5 tracks per cylinder • 135M-byte fixed specifications include 6038-bpi inner track bit density, 680-track-per-inch track density, 305 bytes per sector for 65 sectors plus 335 bytes for last sector, 64 sectors per track plus 2 spares, 16,384 bytes per track, 134,840,320 bytes per pack (formatted), and 10 tracks per cylinder • specifications common to both fixed and removable disks include rotational speed of 3600 rpm, rotation delay of 8.33 milliseconds, average head positioning time of 30 milliseconds and maximum head positioning time of 55 milliseconds • all drives attach to an integrated disk interface mounted in the 8800 chassis.

9331 Single Disk Drive • 135M-byte fixed-disk drive; includes cabinet space for 9333 Expansion Drive:

<u>\$694/\$715/\$630/\$595 mo</u>	<u>\$17,000 prch</u>	<u>\$100 maint</u>
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9332 Dual Disk Drive • two 135M-byte fixed-disk drives:

<u>1,675/1,340/1,185/1,120</u>	<u>31,950</u>	<u>200</u>
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9333 Expansion Drive • 135M-byte fixed-disk drive • requires 9331 Single Disk Drive:

<u>844/675/595/560</u>	<u>16,000</u>	<u>100</u>
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9390 Storage Module • dual 120M-byte disk with controller; available as refurbished equipment only:

<u>NA/NA/NA/NA</u>	<u>16,000</u>	<u>284</u>
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9391 Disk Extension • 67M-byte for 9390:

<u>975/780/670/640</u>	<u>15,950</u>	<u>112</u>
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9392 Disk Extension • 67M-byte for use with 9391 to upgrade 9393:

<u>925/740/635/600</u>	<u>15,050</u>	<u>112</u>
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9393 Disk Extension • dual 67M-byte extension drive:

<u>1,835/1,470/1,260/1,200</u>	<u>24,000</u>	<u>224</u>
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9395 Dual Disk Drive • 67M-byte removable-disk and 135M-byte fixed-disk drives with cabinet:

<u>1,675/1,340/1,185/1,120</u>	<u>31,950</u>	<u>210</u>
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□ Tape

Tape cassette drives are integral to the Datapoint "small-screen" 6600-based systems. The only other tapes available are the 20M-byte backup cartridge tape on the 8600 systems and industry-standard 0.5-inch, 9-track tapes available to 6600 and 8800 systems. The 8800 systems also incorporate a DC150-type cartridge tape drive.

8600 Tape

8600 Tape • 20M-byte cartridge integral to 9301 Disk/Tape, dedicated to backup • 20M-byte backup/restore in under 15 minutes • 256 data bytes per record; 24 records per group; 366 groups per track; 9 serial tracks • controller has some specific

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backup-oriented commands (e.g., Start At Selected Disk Cylinder).

8800 & 6600 Tape

Magnetic tape devices for 6600 and 8800 configurations include a standard cartridge tape drive and can add 3 open-reel drives. Each drive includes an integrated controller. Tape configurations subject to interface availability on the 5500 I/O Adapter on the 8800 or on the 6600 I/O bus.

DC 150 Cartridge Tape Drive • used for loading programs • 500K-byte cartridge capacity; 30 ips for read/write; 90 ips for search • included in 8800 packaged systems; integrated controller attaches to System Adapter.

9586 Open-Reel Tape • 9-track; 800/1600 bpi; 25 ips; 10.5-inch reel; read-after-write • integrated controller attaches to 5500 I/O Adapter on 8800 or to 6600 I/O bus:

\$1,288/\$1,030/\$880/\$840 mo	\$20,975 prch	\$185 maint
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□ Terminals/Workstations

8220 Ergonomic Terminal • 24-line by 80-character, 12-inch display terminal; optionally detached, typewriter-like keyboard includes numeric and function keypads • serial interface provided for printer attachment • 150 to 9600 bps, operator-selectable; attaches to System Adapter for use as operator console; attaches to Multipoint Communications Adapter for use as local/remote workstation • advanced ergonomic design, based on European studies • amber phosphor; detached keyboard; optional tilt/swivel base:

\$80/\$65/\$55/\$50 mo	\$1,395 prch	\$18 maint
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8230 Ergonomic Terminal • with printer port; RS-422 port for 8412 processor only:

130/105/90/85	1,595	22
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0612 Tilt/Rotate Base • for 8220 and 86XX:

NA/NA/NA/NA	100	NC
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□ Printers

9611 Serial Impact • same as 1261; for all systems via serial interface • 35-cps formed character letter quality • 96 characters • 132/158/198 columns at 10/12/15-pitch (132 is default; IEOS supports up to 140) • includes serial interface/controller:

\$165/\$150/\$130/\$125 mo	\$2,795 prch	\$36 maint
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0087 Tractor Assembly • for 9611:

NA/NA/NA/NA	400	NC
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0245 Cut Sheet Feeder:

106/85/76/72	2,055	19
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0640 Cut-Sheet Feeder Interface Kit • for 9611 printer:

NA/NA/NA/NA	350	NC
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962X Matrix Printer • serial interface at up to 9600 bps for attachment to any system, or parallel attachment to 6600/8800 • 160 cps; bidirectional • 96-character set; 132 columns • 10 cpi; 6/8 lpi.

9623 Multi-Mode Matrix Printer • includes all necessary cabling and hardware:

200/160/140/133	3,495	53
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0061 Expanded Print Option • for 962X:

NA/NA/NA/NA	200	NC
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0247 Dual Bin Cut-Sheet Feeder • portrait mode only; manual slot for envelope:

115/90/80/75	1,995	23
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0501 Mechanical VFU • vertical format unit for 160-cps printer:

7/5/4/4	100	NC
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0763 Font Extension Board • for 9623 printer:

NA/NA/NA/NA	395	6
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0764 Tractor • for 9623 printer:

NA/NA/NA/NA	400	NC
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9603 Printer Stand • 160-cps and 45-cps printers:

NA/NA/NA/NA	150	NC
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9628 Matrix Printer • 80 columns, 160 cps:

85/70/60/50	995	20
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0240 Roll Paper Holder • for 9628:

NA/NA/NA/NA	50	NC
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0241 Paper Tractor • for 9628:

NA/NA/NA/NA	70	NC
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Belt Printer • serial interface version for 1560 or 8220 terminal attachment, or parallel interface for 6600/8800.

9214 Belt Printer • 230/340 lpm; 96-/64-character set; 132 print positions; 6 lpi • tractor feed; 1.75- to 16.75-inch wide, 1- to 6-part forms; cartridge-enclosed ribbon • status lamps for fault conditions • parallel interface/controller:

530/425/380/345	8,500	135
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9297 Belt Printer • serial version of 9214:

530/425/380/345	8,500	135
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9213 Belt Option • 64-character belt for 9214/9297 to yield 340 lpm; installation fee only:

NA/NA/NA/NA	NC	NA
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9216 Paper Tray • for 9214/9297:

NA/NA/NA/NA	40	NC
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0593 Parallel-to-Serial Conversion Kit & Cable • 9214 to 9297:

NA/NA/NA/NA	800	NA
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0594 Serial-to-Parallel Conversion Kit & Cable • 9297 to 9214:

NA/NA/NA/NA	625	NA
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925X Band Printers • parallel interface/controller for attachment to 6600/8800 • 132 columns • 10 cpi; 15 cpi optional on 300-lpm version • 6/8 lpi switch-selectable • single-channel vertical forms control • 3- to 16-inch wide, 3- to 14-inch long forms • includes pedestal.

9257 Band Printer • 300 lpm at 64 characters, 10 cpi:

530/425/380/345	8,500	105
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0204 Band • 64 characters at compressed 15 cpi; for 9257 • 132 columns:

NA/NA/NA/NA	400	NC
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0205 Band • 96 characters at 10 cpi; for 9257 • yields 220 lpm:

NA/NA/NA/NA	400	NC
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9258 Band Printer • 600 lpm at 64 characters; 10 cpi:

720/575/510/465	11,950	142
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0226 Band • 96 characters at 10 cpi; for 9258 • yields 440 lpm:

NA/NA/NA/NA	400	NC
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9284 Paper Receptacle • for 925X:

NA/NA/NA/NA	80	NC
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0140 Serial Option • for 9257 or 9258; factory installed:

NA/NA/NA/NA	NC	NA
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0202 Acoustic Cabinet • for 925X • factory installation only • limits form length to 13 inches:

85/65/55/50	1,650	9
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0513 Parallel-to-Serial Upgrade • for 9257 or 9258; field installed:

NA/NA/NA/NA	800	NA
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9660 Laser Printer • printing subsystem that interfaces directly to ARC; includes interface processor, text video processor, control processor and memory, and associated ARC processor with workstation • interface processor accepts commands from the users on the ARC network, routes and formats incoming text, and directs the operation of the text video and control processors • text video processor expands and buffers high-speed data; control processor manages the printing and paper operations; associated ARC processor running under RMS functions as unspooler, controls what information is sent to the 9660, and provides status

Datapoint ARC Systems

1200, 1560, 3200, 6600, 8400, 8600 & 8800 Series

and direct control of 9660 • memory ranges from 128K to 512K bytes • high-quality printer with 480x240 pixels per square inch; printing speed is 20 surfaces per minute or about 1300 lpm; graphics or multiple type faces can be used; up to 32 different character sets can be used per page • provides 5 input drawers which hold 500 pages each and 10 output bins; up to 7 output bins can be added; output can be directed to any bin • status of 9660 is available to all workstations on ARC network • use charge for volume over 10,000 surfaces per month at \$0.026 per surface is added to maintenance fee.

9660 Laser Printer • includes 1 output module, paper tray, and

accessory cabinet:

3,020/2,415/2,165/1,960	47,500	420
9662 Output Module • for 9660; maximum of 3 additional per printer:		
280/223/200/185	6,000	40
80708 Paper Trays • for 9660; set of 5:		
NA/NA/NA/NA	125	NC

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