DATAPRO

Datapro Reports on
Minicomputers

M09-115-**101**

Supermicrocomputer
Systems

Bull
DPX/2 Systems

Note: Bull has recently announced two new models expanding the DPX/2 UNIX server product line. The Model 150 ETS, a new Workgroup Server includes a 33MHz Intel 80486-based platform which runs SCO UNIX operating system. The Model 250 utilizes Motorola's 60949 microprocessor and triples the performance and memory capacity of the Bull DPX/2 200 family.

Bull's DPX/2 series is built around four product families. The entry-level DPX/2 100 consists of the DPX/2 models 110 and 150 ETS, desktop and deskside systems based on the Intel 80386SX and 80486 microprocessors, respectively. The lower midrange DPX/2 200 family consists of the DPX/2 models 210 and 220 based on the Motorola 68030 microprocessor and the Model 250, based on the M68040. The upper midrange DPX/2 300 family, models 320 and 340, are based on the Motorola 68030 microprocessor and the model 360 is based on the Motorola 68040 microprocessor. At the top of the line is the DPX/2 500 family, consisting of models 510 and 510CS, based on the MIPS R6000 RISC processor.

Strengths

• A comprehensive set of standards-compliant systems

• Competitive pricing

• Targeting at specific markets

Limitations

• Upgradability

• Source code rather than binary compatibility

Competition
AT&T(NCR), Data General AViiON, Digital DECsystems, Hewlett-Packard 9000, IBM RISC systems, Sequent and Unisys.

Vendor
Bull
2 Wall Street
Billerica, MA 01821-4199
(508)294-6000
Fax: (508)294-6440

In Canada:
Bull HN Ltd.
155 Gordon Baker Road
North York, ON M2h 3P6
(416)499-2855

Price
From $14,000 to $170,000. **GSA Schedule:** Yes, through HFSI subsidary.

—*By John Bumgarner*

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Product Analysis

In October 1989, Bull introduced the first models of a new UNIX product line. The UNIX System V DPX/2 series was originally comprised of three product families, but follow-up announcements have increased the number of families to four and increased the number of models within each family. In general, these product enhancements have tracked industry-wide enhancements in microprocessor availability and cycle speed, mass storage device improvements, and software. The DPX/2 product line is Bull's response to the market requirement for Open or UNIX-based systems and appeals to users who are attracted to the perceived and real benefits of Open Systems.

All systems run versions of AT&T UNIX System V.3 ranging from BOS/X86 for the older DPX/2 Model 110 which is based on INTERACTIVE's UNIX, to SCO UNIX and Open Desktop for the DPX/2 Model 150, AT&T System V for the DPX/2 200 and 300 product families, and MIPS UNIX for the DPX/2 500. Bull supplies several industry standard dependent software components such as Oracle and Informix relational database management systems, Uniplex, WordPerfect Office Automation Software, languages from companies such as Green Hills, Ryan-McFarland and Micro Focus, and networking applications NFS and TCP/IP from Lachman.

Target Applications

All DPX/2 models are targeted at the following areas:

- Commercial applications, such as database management, workgroup computing, LAN server, transaction processing, communications nodes, office automation and software development.

- Image processing applications, such as geographic information systems and document storage and retrieval systems.

- Hardware/software platform for third-party application providers and vendors.

Strengths

The DPX/2 product line is a series of competitive systems offering a wide range of performance, estimated to range from 3 MIPS to approximately 68 MIPS. The DPX/2 family has closely tracked availability and industry improvements in microprocessors, software and peripherals. Bull has made these improvements available not only in new

Overview

Product	DPX/2 100 Family	DPX/2 100 Family	DPX/2 200 Family	DPX/2 200 Family	DPX/2 200 Family
Model	110	150 ETS	210	220	250
Product Type	Desktop/side i30386SX Multiuser/ server system	Deskside i30486 Multiuser/server system	Small M68030 Multiuser/server system	Small M68030 Multiuser/server system	Small M68040 Multiuser/server system
Base Price	$7,145	$13,995	$6,200	$11,100	$10,500
Design	ISA	EISA	Multibus II	Multibus II	Multibus II
User Interface	X-Windows, Motif	Open Desktop, Motif	X-Windows, Motif	X-Windows, Motif	X-Windows, Motif
Date Announced	May 1990	May 1991	November 1989	May 1990	May1991
Date Delivered	September 1990	July 1991	January 1990	August 1990	August 1991
No. Installed	Unknown	Unknown	Unknown	Unknown	Unknown
No. Users Supported	1-8	1-32	1-16	1-32	1-48

Product	DPX/2 300 Family	DPX/2 300 Family	DPX/2 300 Family	DPX/2 500 Family
Model	320	340	360	510/510CS
Product Type	Midrange M68030 Multiprocessor/ server system	Midrange M68030 Multiprocessor/ server system	Midrange M68040 Multiprocessor/ server system	Large R6000 Multiuser/server system
Base Price	$11,000	$13,000	$20,500	$170,000
Design	CISC/Multibus II	CISC/Multibus II	CISC/Multibus II	RISC/VME
User Interface	X-Windows, Motif	X-Windows, Motif	X-Windows, Motif	X-Windows, Motif
Date Announced	November 1989	November 1989	May 1990	May 1990
Date Delivered	January 1990	January 1990	August 1990	August 1990
No. Installed	Unknown	Unknown	Unknown	Unknown
No. Users Supported	1-64	1-128	1-256	1-512

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Decision Points

Model	Requirements	Comments
DPX/2 Product Line	Vendor Support and Commitment to Open Systems	Bull is an active member of standards organizations and has committed its Product Systems Group to UNIX.
	A Future Growth Path	Bull has closely tracked industry improvements in technology and made them available for installed systems where possible.
	Broad System Software Offering for Application Development	Bull offers a broad range of languages; Oracle, Informix and Uniplex.
	Broad Application Software Offering for Target Markets	Bull offers application packages for discrete manufacturing, child care case workers and licensing, but is relatively dependent upon VARs for applications.
	Source Code Compatibility	All operating systems are compatible and comply with SVID and XPG.
	Binary Code Compatibility	Only the DPX/2 200 and 300 are compatible. The DPX/2 100 and 500 are not.
	DOS Compatibility	Only the DPX/2 100 family provides it.

configurations, but also, as in the case of the Motorola 68040 microprocessor, as an upgrade kit for previously installed DPX/2 systems.

Bull has long been committed to data processing and communications standards, taking roles within the Open Software Foundation, X/Open and the International Organization for Standard's Reference Model for Open System Interconnection (ISO/OSI). The Bull DPX/2 family conforms to current Open Standards such as AT&T's System V Interface Definition (SVID), POSIX, XPG, X.400 and FTAM. Bull has announced its commitment to providing OSF/1 and today offers the OSF Motif as its graphical user interface.

The particular strength within the DPX/2 product line is a wide range of performance levels accomplished through the use of symmetrical multiprocessors and various microprocessor types and speeds. With certain configuration limitations, Bull provides a high level of investment protection through the use of upgrade kits, which allow higher performing processors to be installed in an existing system.

Limitations

Throughout the product line, however, upgradability is somewhat disjointed. Customers cannot upgrade from one family to another for improved configurability. For example, the DPX/2 100 family based on the Intel 80X86 microprocessors cannot be upgraded to the Motorola 680X0-based 200 family, or the 200 family to the 300. The prospective customer should determine what the maximum asynchronous connections and database size will be before selecting a particular family. Each family offers processor performance enhancement but has a more limited capability for physical expansion.

While the DPX/2 200 and 300 families are binary compatible, the DPX/2 100 and 500 are only source code compatible with each other and the other families.

This factor can increase system management problems in which a range of DPX/2 systems are required to serve local workgroups as well as corporate databases.

User Ratings

Datapro recommends that prospective users contact Bull for customer references.

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Vendor Analysis

Groupe Bull has evolved as an international partnership which began with a 1962 long-term technology agreement between Honeywell and NEC, and evolved through mergers and agreements involving the French Company Machines Bull, whose majority owner was General Electric. Groupe Bull emerged in the 1980s and eventually removed all corporate barriers to product development within its component elements. As a result, the Product Systems Group has been established with three objectives:

- Ensure success of the Bull system architecture, called the Distributed Computing Model

- Provide a complete line of UNIX products

- Maintain the satisfaction of the proprietary GCOS customer base

The DPX/2 product line is the company's flagship UNIX product at this time. Bull has indicated that all systems will eventually evolve to provide the availability of UNIX as an operating system.

Target Markets

Bull has primarily targeted the DPX/2 product line at specific industry sectors within the commercial market segment, either directly or through solution-providing partners. These include:

- Discrete manufacturing, including automotive, aerospace, defense, electronic and electrical, and appliance industries.

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- Accounting and financial
- Distribution and wholesale
- Federal government and military organizations
- State and local governments, especially licensing agencies, child care agencies and geographic information systems users

Mergers and Acquisitions

April 1987	Groupe Bull begins acquisition of Honeywell Information Systems
October 1989	Acquires Zenith Data Systems
October 1990	Acquires HFSI from Honeywell Inc.
July 1991	Sells Bull HN's 14% ownership in Magnetic Peripherals Inc. to Control Data

Competitive Analysis

Market Position
The DPX/2 product line addresses the highly competitive small business and departmental computing market, especially that segment attracted to open systems. In general, industry sources for domestic market share data either do not segment data according to open vs. proprietary systems, or fail to list Bull. Internationally, Bull can claim a market share of 10%-20% in the countries of France, Italy, and the United Kingdom and slightly smaller shares in the remainder of Europe. In North America, however, Bull's market share is believed to be small (less than 1%), due in part to the relatively recent entry into that segment.

Major Competitors
The Bull DPX/2 competes against myriad general-purpose small-scale and midrange systems and servers running AT&T's UNIX System V operating system and other derivatives. Among the major competitors are the IBM RISCsystems, the Digital DECsystems and VAX systems running Ultrix, the Unisys U6000 Series, the AT&T NCR 3000 Series, Data General AViiON servers, Sun servers, Sequent systems, and Hewlett-Packard 9000. Competition will come also from the small and midrange proprietary systems such as the IBM AS/400 systems, Hewlett-Packard 3000 systems, Digital VAX systems running VMS and others.

Sales and Distribution Strategy

Bull sells all of its systems through approximately 100 U.S. sales offices grouped into four profit centers: Indirect Sales Operations, Major Accounts, and two geographic operations: Eastern Operations in Boston, MA and Western Operations in Los Angeles, CA.

Sales
Historically, because of Honeywell's mainframe and Bull's midrange orientation, sales have been primarily direct to the user, although the DPX/2 can be sold by the direct sales force especially for large procurements. For smaller or special opportunities, the direct sales force is encouraged to refer the opportunity to an indirect reseller for a joint marketing effort.

The introduction of departmental system products such as the DPX/2 have changed Bull's emphasis to indirect marketing. Bull uses a multitiered indirect sales organization consisting of:

- Master VARS, who sell to Direct VARs and add value
- Direct VARs, who sell to end users and generally must add value
- Solution Associates, who sell their vertical solutions and Bull platforms
- Distributors, who sell to Direct VARs but do not add value
- HFSI markets to the U.S. Federal Government and to defense companies who subcontract for information processing equipment.

Company Activity

3/89	Signed VAR Agreement with Chesapeake Computer Solutions
7/89	Signed OEM or VAR Agreement with Cycare Systems
11/89	Introduced Solution Associate Program
12/89	Signed VAR Agreememt with R&D Hardware Group
2/90	Signed Master VAR Agreement with Rhino Sales
4/90	Signed Master VAR Agreement with Jacore International
6/90	Signed Master VAR Agreememt with Computer Source International Inc.
10/90	Agreed with Cincom Systems to market MANTIS on all platforms
5/91	Obtained rights to IBM ESCON technology

Support

Bull Customer Service provides hardware maintenance support programs and software support programs typical of most larger system vendors. These programs are available through annual service contracts with terms and conditions standard for the industry. Customers who decline to contract for service can obtain services on a time and material basis.

Competitors' Programs

AT&T
AT&T offers a variety of hardware maintenance programs provided through AT&T dealers or resellers. They also offer toll-free technical support (800) 922-0354.

Digital
Digital provides support and service for more than 4,000 systems and products from over one hundred manufacturers. Its comprehensive support includes planning, design, installation, maintenance, remote diagnostics, training, performance and application development. Its Customer Support centers and remote diagnostic centers are available 24 hours a day, 7 days a week.

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Data General

Data General's main customer support center is located in Georgia, but offers support from its VARs, along with a full range of services through sales and service offices, as well as remote Diagnostic support. Data General offers toll free telephone support. IBM's RISC System/6000 is covered by on-site repair (IOR) for one year; this includes 24-hour-a-day, 7-day-a-week hardware service along with full software support. SystemXtra for the RS/6000 is an additional charge for hot-line service. Electronic Customer Support provides on-line question-and-answer facility, resource and configuration management, structured problem determination and automated call processing for service help.

IBM

IBM's Service Plan allows users to order any or all IBM services through a single document which includes such services as maintenance, invoicing, end-user support, site-planning, installation and network services. Maintenance is provided 24 hours a day, 7 days a week by customer engineers (CEs) and customer assistance groups (CAG). IBM provides remote diagnostic and technical support through a toll free number and offers Technical Services Management (TSM) designed to provide maintenance for customers in a mixed-vendor environment.

Policies & Programs

Warranty

In general, small and midrange Bull DPX/2 systems and components are warranted for one year, return-to-factory. As an incentive to use Bull Customer Service, customers who elect to contract for on-site maintenance service for the second year (or postwarranty) prior to or during the warranty period will also receive on-site maintenance service for the remainder of the warranty period.

Customers who do not elect to contract for postwarranty maintenance may upgrade to on-site warranty service through a warranty upgrade option that is priced at approximately 50% of the annual maintenance.

The DPX/2 Model 500 and components are warranted for one year, on-site.

Services

Bull provides postwarranty maintenance and product support under a standard service contract. Hardware and software support for the DPX/2 is provided through the Bull Customer Services TotalCare program, which provides the following services:

Site Planning

Basic site planning is available and includes on-site inspection by a site planner, a findings report and phone support during site preparation. Extended site planning includes the above plus a recommended layout and detailed site report. The basic site planning service costs approximately $450, while the extended service costs approximately $765.

Installation

All DPX/2 systems, with the exception of the DPX/2 500, are customer installable. For systems designated "customer installable," an optional installation service provides Bull installation of the hardware after the customer's cable installation is complete, system testing by Bull, and

peripheral installation. Fees range from $225 to $700, depending upon the system unit.

Bull will also handle multiple system installations, subsequent add-ons, moves and deinstallations.

Hardware Maintenance Services

All DPX/2 systems, with the exception of the DPX/2 500, are designed for customer-assisted maintenance in which the customer can perform problem diagnosis and failed unit replacement. Therefore, Bull offers various levels of service with pricing structured to reflect the customer's involvement in the process and the response time desired. Three options are available for maintenance service:

- On-site maintenance provides on-call remedial hardware maintenance to contracted customers for an annual charge. Service is provided for up to 70 hours per week during the principal period of maintenance of 8 a.m. to 6 p.m. local time Monday through Sunday, excluding Bull's locally observed holidays. Response time is four hours for all systems in the DPX/2 200 family and larger. Response time for the DPX/2 100 family is "Next Business Day."

- Remote diagnostic service is available to customers with Standard On-site Maintenance contracts or with warranty service upgraded to on-site service. DPX/2 200, 300 and 500 families are equipped with hardware and software tools to allow remote access by Bull for problem resolution and troubleshooting.

- Scheduled Extended Maintenance provides on-call remedial maintenance service under the standard agreement and allows requests for service outside the standard hours, 7 days per week, 24 hours per day. Unscheduled maintenance is available outside the contracted maintenance period on a time and materials basis, currently priced at $142 per hour.

- Dispatch maintenance service provides the faster response time for customer-assisted maintenance programs. Bull will dispatch a replacement part to the customer by courier or by company van for exchange after the customer has performed the diagnosis and identified the failing component.

- Walk-in or mail-in maintenance provides the least expensive maintenance program. In areas near a Bull service center the customer may take the failing component to the center and exchange it. In more remote areas, the customer's option is to mail the failed component to a Bull parts depot for exchange.

Software Support

Software product support is available for core system software as well as system-level applications. Bull also provides first level support for third-party applications that it markets.

Bull offers two levels of software support, Basic and Expanded Software Support. Basic Software Support provides telephone access 24 hours per day, 7 days per week for the purpose of Bull's receipt and distribution of problem calls. Problem calls will be conveyed to the Bull Technical Assistance Center (TAC) personnel during their normal working hours. Bull personnel will assist in the preparation, processing, and responding to System Technical Action Requests (STARS). Bull will provide updates and revisions as well as related documentation for their software products via an updating facility such as communications, tapes or diskette.

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Expanded Software Support provides the services enumerated for Basic Software with the additional services and support as follows:

- Telephone or on-line support for consultation during installation

- Bull review of software parameters during initial installation

- On-line or direct use of expanded support tools

- Development of temporary fixes or emergency bypass

- Assistance in problem resolution related to the installation of update and corrective information.

If, after the remote support services above, additional support is required, support personnel will provide on-site support during normal working hours. Bull personnel will schedule 4 visits per year to the customer site to consult in the management of software products.

Service Providers
Bull Customer Service
900 Middlesex Turnpike
Billerica, MA 01821

Service Locations
Bull Customer Service has approximately 200 locations in major cities or urban areas through the U.S. and Canada.

Service Hours
Bull Customer Service provides 7-day-per-week, 24-hour-per-day access to an 800 number for hardware and software problem reporting and Bull's scheduling/distribution of TAC or customer engineer response. Hardware service hours are 8 a.m. to 6 p.m. 7 days per week and software TAC hours are generally 8 a.m. to 6 p.m. Monday through Friday excluding locally observed holidays.
Outside MA: (800) 241-1634
Inside MA: (800) 331-3013

Training/Education
Bull provides a series of courses and hands-on exercise laboratories for most software products marketed. Self-study programs are also available. For the DPX/2 family, many systems provide educational credits toward courses offered by Bull in the UNIX arena. The education programs address individual job functions as they relate to computer system management and applications development functions.

Upgrade Policies
In general, software upgrades are available at no charge to customers who currently have a support contract, either basic or expanded level.

User Groups

Bull User Society Americas (BUS) is open to all customers of Bull products from personal computers to mainframes. It succeeds both the Honeywell Large Systems Users Association (HLSUA) for mainframe users and the North American Honeywell Users (NAHU) group which had focused on minicomputer and midframe users. The primary purpose of BUS is to promote a bidirectional exchange of information with the vendor.

Bull User Society Americas
c/o LTP Associates
4201 Church Road
The Ellipse Building, Suite 10
Mount Laurel, NJ 08054
(609) 231-1485
Fax: (609) 231-1489

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Specifications

Enhancements

Date	Event
Oct 89	Introduced original DPX/2 Models 600ix, 210, 320, 340
May 90	Introduced Models 110, 220, 360, 510, BOS/RISC and C2 security module
Sept 90	Introduced CPS-Child Protection System
May 91	Introduced Models 150 and 250, SCO UNIX and Open Desktop; Announced Open Team for client/ server environment; reduced prices significantly on all models in the DPX/2 300 family; introduced Informix H.O available for DPX/2 100 with UNIX/SCO; announced pilot phase for DPX/ZDX for selected Zenith Platform models with SCO UNIX, Informix VH and Uniplex V7; announced Model 210 can be upgraded to a Model 250 with a 68040 power upgrade kit, increasing performance by 300%
Sept 91	Announced Distributed Computing Facility Workbench; announced Consolidated Management Application Program Interface (CMAPI) jointly developed by Bull, HP and IBM.

Features/Functions

Model	110	150ETS	210	220	250
Model Characteristics					
Processor Model	80386SX	i486	M68030	M68030	M68040
Processor Type	CISC	CISC	CISC	CISC	CISC
Number Of Processors	1	1	1	1	1
Fl. Pt. Processor Model	80387	Weitek 4167	68882	68882	68882
Min./Max. Memory (bytes)	4M/8M	8M/64M	8M/16M	4M/16M	4M/68M
Memory Type	NMOS 4Mb DRAM	RAM	NMOS 4Mb DRAM	NMOS 4Mb DRAM	NMOS 4Mb DRAM
Expansion Increments (bytes)	2M	4M/16M	4M/8M/16M/32M	4M/8M/16M/32M	4M/8M/16M/32M
Cache Memory (bytes)	4K	8K inter. 128K-EXT	64K (optional)	64K	64K or 256K optional
Min./Max. Int. Mass Storage (bytes)	80M/160M	388M/2.4G	155M/2G	155M/3G	

Comments: The DPX/2 Family supports Symmetrical Multiprocessing for up to 4 processors and can be configured for disk mirroring and failsoft

General Performance					
MIPS	3.5	3.5-7.0	2.5-3.5	2.5-3.5	12-15

Input/Output Subsystem					
Bus Architecture	ISA	EISA	Multibus II/VME	Multibus II	Multibus II
Expansion Slots	4	8	3 local M3	3 local or Multibus	3 local or Multibus
Parallel Ports	1	2	1-10	1-10	1-10
Number of Serial Ports	2-10	2	8-88	8-88	88
Other I/O Ports	1SCSI	Mouse	—	—	—

Model	320	340	360	510/510CS
Model Characteristics				
Processor Model	M68030	M68030	M68040	MIPS6000
Processor Type	CISC	CISC	CISC	MIPSRISC
Number Of Processors	1 or 2	1-4	1-4	1
Fl. Pt. Processor Model	68882	68882	68882	R6010 (Opt.)
Min./Max. Memory (bytes)	8M/144M	8M/288M	16M/576M	32M/416M
Memory Type	NMOS 4Mb DRAM	NMOS 4Mb DRAM	NMOS 4Mb DRAM	NMOS 4Mb DRAM

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Features/Functions (Continued)

Model	320	340	360	510/510CS
Model Characteristics (Continued)				
Expansion Increments (bytes)	4M/8M/16M/32M	4M/8M/16M/32M	4M/8M/16M/32M	
Cache Memory (bytes)	64K per CPU	592K	—	592K/512K
Min./Max. Int. Mass Storage (bytes)	155M/7.4G	155M/15G	388M/23G	675M/40G
General Performance				
MIPS	6.0/CPU	7./CPU-30.4	15 to 60	68
Main Processor Speed	25MHz	33MHz	25MHz	60MHz
Input/Output Subsystem				
Bus Architecture	Multibus II/VME	Multibus II/VME	Multibus II	VME
Expansion Slots	7	17	17	16-32
Parallel Ports	1-10	1-10	1-10	1-10
Number of Serial Ports	16-192	16-384	512	512
Other I/O Ports	—	—	SCSI	SCSI, Ethernet

Peripherals

Hard Disk Storage Devices

Model	MSU3201	MSU3601	MSU3602	MSU3603/7	MSU3611/08	MSU3606
Type (Int./Ext.)	Internal	Internal	Internal	Internal	Internal	Internal,WORM
Size (in.)	3.5	5.25	5.25	5.25	5.25	5.25
Formatted Capacity (bytes)	100M	155M	338M	675M	1G	2X326M (650M)
Interface/Controller Type	IDE	SCSI	SCSI	SCSI	SCSI	SCSI/CCS
Average Access Time (ms)	—	18	18	18	16	75
Data Transfer (bytes/sec)	—	1.25M	4M	4M	4M	1.25M
Supported by System Models	110	200 & 300	DPX/2 150 and above	DPX/2 150 and above	DPX/2 150 and above	DPX/2 200 and above

Tape Devices

Model	MTU3610	CDU1963	MTUL201	MTU3602	MTU3611
Type	Reel to reel	Cartridge	Cartridge	Cartridge	Cartridge
Size	.5 in.	.25 in.	.25 in.	.25 in.	8mm
Format					
Recording Density	1600/6250	10K	—	10K	
Recording Mode	PE/GCR	QIC-150	—	QIC-150	Helical
Characteristics					
Interface/Controller	—	—	SCSI	SCSI	SCSI
Unformatted Storage Capacity	146M	150M	525M	150M	2.3G
Tape Speed (IPS)	90	30	—	90	—
Data Transfer Rate (BITS/SEL)	469K	31.8X	—	112.5K	246K
Supported on Workstation Models	DPX/2 200 and above	Model 110	Model 150	DPX/2 200 and above	DPX/2 200 and above

Printers

Model	4/22	4/23	4/24	4/40	4/41	4/43
Type	Matrix	Matrix	Matrix	Matrix	Matrix	Matrix
Speed	50cps LQ 200cps DQ	50cps LQ 200cps DQ	80cps LQ 240cps DQ	70cps LQ 180cps NLQ 300cps DQ	70cps LQ 180cps NLQ 300cps DQ	100cps LQ 360cps DQ
Interface Controller	Centronics	Centronics	Centronics	Centronics RS-422-A RS-232-C	Centronics RS-422-A RS-232-C	Centronics RS-422-A RS-232-C

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Peripherals (Continued)

Printers (Continued)

Model	4/66	4/68	75	85	PRU0882	PRU0881
Type	Matrix	Matrix	Laser	Laser	Band	Band
Speed	480cps DQ 75cps LQ 180cps NLQ	600cps DQ 225cps NLQ 150cps LQ	6 ppm	15 ppm	325 lpm	650 lpm
Graphics Resolution	—	—	300X300dpi	DNA	DNA	
Interface/Controller	Centronics RS-422-A RS-232-A	Centronics	Centronics RS-232-C	Centronics	Centronics	Centronics

Workstations/Terminals

Model	HDS7101	HDS7102	HDS7403	HDS7404
Screen Size (in.)	12	12	12	12
Screen Size (lines x char.)	25 x 80	25 x 80	25 x 80	25 x 80 or 25 x 132
Symbol Formation	7 x 12	7 x 12	7 x 10	7 x 10
Character Phosphor	Green	Amber	Green	Amber
Man. No. Simultaneous Colors/Grays	1	1	1	1
Interface	RS-232-C RS-422-A	RS-232-C RS-422-A	RS-232-C RS-422-A	RS-232-C RS-422-A

Model	X-TERMINAL	X-TERMINAL	X-TERMINAL
Screen Size (in.)	14	15	17
Screen Size (lines x char.)	1024 x 768	1024 x 768	1024 x 768
Character Phosphor	Color	Monochrome	Color
Max. No. Simultaneous Colors/Grays	256	DNA	256
Interface	Ethernet or 10 BaseT	Ethernet or 10 BaseT	Ethernet or 10 BaseT

Communications

Networking Features
Network Interfaces	Ethernet, X.25
Network Protocols Supported	TCP/IP, NFS, ISO, Bull Unified File Transfer, System Network Architecture, Binary Synchronous Communications, ISO/OSI X.25

Software

Operating System	BOS/X86, SCO UNIX, SCO Open Desktop, BOS/68K, BOS/RISC
UNIX Implementation	AT&T System V Rel. 3.2
Complied Standards	SVID, POSIX, XPG-3
Compilers	C, Cobol, PASCAL, FORTRAN
DBMS(s)	Oracle, Informix, UNIFX, ACCELL
Appl. Development Tools	Informix 4GL, Q-Office T
Communications Software	3270, 2780/3780 RJE or SNA 3270, SNADS, and HLLAPI

Other Software

Package	Source	Description
SHOP PLUS	Bull	Discrete Manufacturing Applications
Uniplex	Bull/Uniplex	Office Automation, Spreadsheets, Business Graphics
OPENTEAM	Bull	UNIX work group solutions

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DPX/2 Systems

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Security Features

Operating System	C-2 or B-1 Security Module Option
Physical Security	Disk Mirroring on DPX/2 300
NCSC Security: Date/Level	C-2
Tempest Version Available	No

Operating Requirements

Hardware	All systems require one fixed-disk unit, console terminal with cable, and one 150MB streamer tape unit
Software	Model 150 ETS offers two choices of operating systems; SCO UNIX system V and Open Desktop C provides SCO UNIX System V plus networking services, database and DOS

Configuration

Sample Configuration	Model	Description	Price ($)	Maint. ($)
DPX/2 100	UNX3218-AOA	DPX/2 150 i80486 33MHz system with 8MB memory, 8KB/128KB cache memory, disk and diskette controller with one 3.5-in. diskette and 338MB SCSI disk, 8 EISA bus slots, 2 RS-232-C ports, 1 printer (Centronics) port, VGA controller and color monitor, keyboard	13,995	700
	CMML202	16MB Memory expansion for DPX/2 150	4,800	128
Additional Storage and Backup	MSUL201	338MB 5.25-in. hard disk for DPX/2 150	3,750	300
	MTUL201	525MB Integrated SCSI Streamer for DPX/2 150	1,590	160
Network Hardware	DCML201	DigiCHANNEL C/16 16Port Concentrator	2,195	44
	LEML201	Ethernet LAN Controller	600	12
Printers	PRT7500	Model 75; 8PPM with Centronics and RS232 interfaces	2,695	400
Total Hardware			29,625	1,744
Required Operating Software	SXS3048-L7A	SCO Open Desktop Base includes runtime, TCP/IP, NFS and DOS UNIX for DPX/2 150, up to 2 users, cassette media	995	120
	SXS3049-L1A	SCO Open Desktop Server Upgrade includes PCI Server, SQL NET Server, NFS Server, X and serial terminal support; requires SCO Open Desktop Base	1,495	180
Total Software			2,490	300
Total System			32,115	2,044

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Configuration (Continued)

Sample Configuration	Model	Description	Price ($)	Maint. ($)
DPX/2 200	UNX3609-A0A	DPX/2 250 with 4MB memory and 2 expansion connectors for additional memory, 64KB cache, SCSI controller, floating point processor, diskette controller and 5.25-in. diskette drive, local/ remote ports, 2 sync. ports, printer port, 2 local exp. slots, 3 Multibus II expansion slots and Multibus II adapter.	10,500	740
	UNM3620	16MB Memory Module for DPX/2 200 & 300 systems	6,300	0
Additional Backup and Storage	MSU3603	(2) 675MB 5.25-in. full-height SCSI hard disk unit for DPX/2 200 & up	5,950	455
	MTU3602	150MB half-height cartridge tape unit for DPX/2 200 & 300	1,910	200
Network Hardware	DCP3602	Communications processor for 16 async lines, 1 printer port for DPX/2 200 and 300	2,590	150
	DCP3604	Extended Comm Processor with Ethernet LAN port and two 19K bps sync lines for DPX/2 200 and 300	3,000	180
Printers and Console	PRT4662	(2) Model 4/66; 136- column matrix printer, 480 cps (DQ), 75 cps(LQ) with Centronics interface, add $155 for RS232/ 422 interface	2,395	350
	HDS7102-001	BDS 1 Terminal and Keyboard Unit, amber phospher, less cable	595	85
Total Hardware			33,895	2,160
Required Operating Software	SXS3095-L7AT	BOS/68K 2.0 operating system includes development system and C compiler for up to 16 users. Level 1 customer.	1,300	160
Required Operating Software (Continued)	SXS3002-L6	BOS/68K 2.0 operating system includes development system and C compiler; upgrade to 16+ users	1,200	145
Total Software			2,500	305
Total System			36,395	2,465

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Configuration (Continued)

Sample Configuration	Model	Description	Price ($)	Maint. ($)
DPX/2 300	UNS3610-A0A	DPX/2 360 with 16MB memory and 4 expansion slots for additional memory modules, 64KB cache, SCSI controller, floating point processor, diskette controller and 5.25-in. diskette drive, local/ remote console port and 7 Multibus II expansion slots.	20,500	1,770
	CPU3603	Model 360 Additional CPU with 16MB memory, 64KB cache and FPU	13,500	795
	UNM3622	32MB Memory Module for DPX/2 200 & 300 systems	9,600	0
Additional Storage and Backup	MSU3608/MSU3611	(3) 1GB 5.25-in. full-height SCSI hard disk unit for DPX/2 200 & up	28,500	665
	MTU3611/MTU3612	2.3GB full-height cartridge tape unit for DPX/2 200 & up	6,300	715
Network Hardware	DCP3604	Extended Comm Processor with Ethernet LAN port and two 19K bps sync lines for DPX/2 200 and 300	3,000	180
	DCP3602	Communications processor for 16 async lines, 1 printer port for DPX/2 200 and 300	2,590	150
Printer and Console	PRU0881-A0A	325 LPM Band printer, for DPX/2 200 and 300	8,200	1,100
	HDS7101-001	BDS 1 Terminal and Keyboard Unit, green phospher, less cable	595	85
Total Hardware			92,785	5,460
Required Operating Software	SXS3119-L7AT	BOS/68K 2.0 operating system includes development system and C compiler for up to 32 users. Level 1 customer.	4,000	480
	SXS3005-L6	BOS/68K 2.0 operating system includes development system and C compiler; upgrade from 32 to 64 users	3,800	460
Total Software			7,800	940
Total System			102,565	6,400
DPX/2 510	UNS3603-A0A	DPX/2 510 with 32MB main memory, 592MB multilevel cache, SCSI and Ethernet LAN controllers, serial I/O controller with 16 RS-232-C and 1 Centronics ports, 150MB cartridge tape and 3 VME slots	170,000	12,600

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Configuration (Continued)

Sample Configuration	Model	Description	Price ($)	Maint. ($)
	UNM3615	32MB Memory Module for DPX/2 510 systems only, 3 maximum	36,000	1,400
Additional Storage and Backup	MSU3608/MSU3611	(5) 1GB 5.25 full-height SCSI hard disk unit for DPX/2 200 & up	47,500	3,325
	MTU3611/MTU3612	2.3GB full-height cartridge tape unit for DPX/2 200 & up	6,300	715
	MTU3610-A00	GCR/PE 6250/1600bpi magnetic tape unit for DPX/2 200 & up	16,000	1,600
Network Hardware	UNX3605-A0A	Communication Front-end Subsystem for DPX/2 500. Specially configured Model 320 with 155MB disk and two sync ports. Uses Model 300 controllers above	18,230	1,365
	DCP3602	(2) Communications processor for 16 async lines, 1 printer port for DPX/2 200 and 300	5,180	300
Printers and Console	PRU0882-A0A	650 LPM Band printer, for DPX/2 200, 300 and 500	10,800	1,450
	HDS7101-001	BDS 1 Terminal and Keyboard Unit, green phosphor, less cable	595	85
Total Hardware			310,605	22,840
Required Operating Software	SXS3400-L2AT	BOS/RISC operating system includes TCP/IP, Network File System,and C RISCompiler for up to 64 users. Level 1 customer.	11,000	1,320
	SXS3401-L2AT	For up to 64 users BOS/RISC operating system; upgrade to 64+ users. Level 1	12,000	1,440
Total Software			23,000	2,760
Total System			333,605	25,600

Physical Environment

Model	110	150	210	220	250
Physical Specifications					
Height x Width x Depth (in.)	6.32x20.86x16.5	24.4x6.8x27.75	26.38x9.45x27.0	26.38x9.45x27.0	26.38x9.45x27.0
Weight (lbs.)	44	90	165	165	165
Electrical Specifications					
Power Supply (watts)	—	395	—	—	1440 (max.)
Input Power (VAC)	120/220	115/230	120/220	120/220	120/220
Max. Power Consumption (amps)	—	—	1440	1440	—
Operating Environment					
Temperature (F°)	50-89	50-95	50-100	50-100	50-100
Humidity (%)	20-80	0-85	20-80	20-80	20-80

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Physical Environment (Continued)

Model	320	340	360	510
Physical Specifications				
Height x Width x Depth (in.)	26.38 x 7.13 x 27.0	26.38 x 17.13 x 27.0	26.38 x 17.3 x 27.0	27 x 18 x 34.5
Weight (lbs.)	286	286	286	315 system cabinet, 275 expansion
Electrical Specifications				
Input Power (VAC)	120/220	120/220	120/220	120/220
Max. Power Consumption (amps)	1440	1440	—	—
Operating Environment				
Temperature (F°)	50-100	50-100	50-100	41-95
Humidity (%)	20-80	20-80	20-80	10-80

Compatibility

Standards Supported	SVID, X/OPEN, POSIX

Pricing

Model	Description	Price ($)	Maint. ($)
DPX/2 100 Systems			
UNX3206-A0A	DPX/2 110 system with 4MB memory, 32KB cache memory, disk and diskette controller with one 3.5-in. diskette and 80MB disk, 4 AT (ISA) bus slots, 2 RS-232-C ports, 1 printer (Centronics) port, VGA controller and color monitor, keyboard and BOS/X86 operating system.	7,145	240
UNX3207-A0A	Same as UNX3206-A0A with monochrome in lieu of color monitor	6,740	198
UNX3218-A0A	DPX/2 150 80486 33MHz system with 8MB memory, 8KB/128KB cache memory, disk and diskette controller with one 3.5-in. diskette and 338MB SCSI disk, 8 EISA bus slots, 2 RS-232-C ports, 1 Centronics port, VGA controller and color monitor, keyboard and BOS/X86 OS	13,995	700
UNXL220-A0A	Same as UNX3218-A0A with 16MB memory and 1.0GB disk	19,995	999
DPX/2 200 Systems			
UNX3601-A0A	DPX/2 210 with 4MB memory and 2 expansion connectors for additional memory and connector for cache, SCSI controller, FPU, diskette controller and 5.25-in. diskette drive, 8 async. local/remote ports, 2 sync. ports, printer port and 3 expansion slots.	6,200	425
UNX3604-A0A	DPX/2 220 with 4MB memory and 2 expansion connectors for additional memory, 64KB cache, SCSI controller, floating point processor, diskette controller and 5.25-in. diskette drive, local/remote ports, 2 sync. ports, printer port, 2 local exp. slots, 3 Multibus II expansion slots and Multibus II adapter.	11,100	670
UNX3609-A0A	DPX/2 250 with 4MB memory and 2 expansion connectors for additional memory, 64KB cache, SCSI controller, floating-point processor, diskette controller and 5.25-in. diskette drive, local/remote ports, 2 sync. ports, printer port, 2 local exp. slots, 3 Multibus II expansion slots and Multibus II adapter.	10,500	740
DPX/2 300 Systems			
UNS3601-A0A	DPX/2 320 with 8MB memory and 8 expansion slots for additional memory modules, 64KB cache, SCSI controller, floating point processor, diskette controller and 5.25-in. diskette drive, local/remote console port and 7 Multibus II expansion slots.	11,000	910
UNS3602-A0A	DPX/2 340 with 8MB memory and 8 expansion slots for additional memory modules, 64KB cache, SCSI controller, floating point processor, diskette controller and 5.25-in. diskette drive, local/remote console port and 7 Multibus II expansion slots.	13,000	1,135

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Model	Description	Price ($)	Maint. ($)
DPX/2 300 Systems (Continued)			
UNS3610-A0A	DPX/2 360 with 16MB memory and 4 expansion slots for additional memory modules, 64KB cache, SCSI controller, floating-point processor, diskette controller and 5.25-in. diskette drive, local/remote console port and 7 Multibus II expansion slots.	20,500	1,770
DPX/2 510 Systems			
UNS3603-A0A	DPX/2 510 with 32MB main memory, 592MB multilevel cache, SCSI and Ethernet LAN controllers, serial I/O controller with 16 RS-232-C and 1 Centronics ports, 150MB cartridge tape and 3 VME slots.	170,000	12,600
UNS3604-A0A	DPX/2 510 Communication System consisting of UNS3603-A0A and UNX3605-A0A.	188,230	13,965
DPX/2 Memory Expansion Options			
CMK1972	2MB Expansion Memory Module for DPX/2 100, motherboard only	1,295	16
CMM1971	Expansion Memory Board with 4MB memory for DPX/2 100, expandable to 16MB	2,590	32
CMK1973	4MB Expansion Memory Module for CMM1971	1,750	32
CMML201	4MB Memory expansion for DPX/2 150	1,200	32
CMML202	16MB Memory expansion for DPX/2 150	4,800	128
UNM3601	4MB Memory Module for DPX/2 200	1,800	0
UNM3602	8MB Memory Module for DPX/2 200	3,600	0
UNM3623	8MB Memory Module for DPX/2 200 & 300 systems	3,600	0
UNM3620	16MB Memory Module for DPX/2 200 & 300 systems	6,300	0
UNM3622	32MB Memory Module for DPX/2 200 & 300 systems	9,600	0
UNM3615	32MB Memory Module for DPX/2 510 systems only, 3 maximum	36,000	1,400
Processor Options			
CPF1972	Math Co-processor (Intel 80387) for DPX/2 100	1,395	0
UNF3601	64KB Cache for DPX/2 200	1,500	90
UNF3601	256KB Cache for DPX/2 250	2,530	145
UNF3603	Multibus II Adapter	1,600	90
UNF3602	VME Double Eurocard Board Adapter for DPX/2 200 and 300	440	25
KIT3611	MC68040 Power Upgrade Kit with 4MB Memory for DPX/2 210 & 220	5,200	315
CPU3601	Model 320 Additional CPU with 8MB memory, 64KB cache and FPU	6,500	380
CPU3602	Model 340 Additional CPU with 8MB memory, 64KB cache and FPU	7,500	440
CPU3603	Model 360 Additional CPU with 16MB memory, 64KB cache and FPU	13,500	795
KIT3002	Upgrade Kit to convert Model 320 to Model 340, single processor	5,170	295
KIT3003	Upgrade Kit to convert Model 320 to Model 340, dual processor	10,340	610
KIT3612	Power Upgrade Kit for Mono CPU includes M68040 and 16MB Memory	10,000	600
KIT3613	Power Upgrade Kit for Dual CPU includes 2 M68040 CPUs with 16MB memory each	17,000	1,020
KIT3614	Power Upgrade Kit for Triple CPUs, includes 3 M68040 CPUs with 16MB Memory each	24,000	1,440
KIT3615	Power Upgrade Kit for Quadruple CPUs, includes 4 M68040 CPUs with 16MB Memory each	31,000	1,850
CAB3604-A0A	Disk Cabinet (DPX/2 500 models) includes power supply for 14 5.25 devices	14,190	810
CAB3605-A0A	Expansion cabinet (DPX/2 500 models) 6 VME slots and 7 5.25 devices	24,800	1,250
Peripheral and Communications Controllers			
CPF1932	SCSI Controller for 150MB cartridge tape, DPX/2 100	400	25
DCP3605	Dual port SCSI processor for 6 dual ported devices	3,630	210
DCP3607	SCSI controller for 7 single port devices, DPX/2 500	6,900	340
DCM1978	Ethernet Controller for DPX/2 100	610	35
DCP3203	Communications controller for 4 async lines, DPX/2 100	700	50
DCF0740	Communications controller for 8 async lines, DPX/2 100	900	60
DCM1982	Multiprotocol Comm. controller for 4 sync lines, DPX/2 100	1,850	100
DCP3602	Communications processor for 16 async lines, 1 printer port for DPX/2 200 and 300	2,590	150
DCP3603	Terminal Concentrator Processor with 4 ports to support a remote DCC3602 and 1 Centronics printer port, DPX/2 200 and 300	2,260	130
DCC3602	Concentrator for 8 local async lines, DCP3603 required	1,090	65
DCP3611	Extended Comm Processor with Ethernet LAN port and 2 19K bps sync lines for DPX/2 200 and 300	3,000	180
DCP3604	Extended Comm Processor with Ethernet LAN port and 1 19K bps sync line and 1 64K bps sync for DPX/2 200 and 300	4,000	240
UNX3605-A0A	Communication Front-end Subsystem for DPX/2 500. Specially configured Model 320 with 155MB disk and two sync ports. Uses Model 300 controllers above.	18,230	1,365
DCP3608	Serial I/O controller with 16 async and 1 Centronics port for DPX/2 500. Requires CAB3605-A0A.	6,500	275
Mass Storage Devices			
MSU1964	100MB 5.25-in. half-height hard disk unit for DPX/2 100	1,795	70
MSU1965	140MB 5.25-in. half-height ESDI hard disk unit for DPX/2 100	2,095	75
MSU1966	300MB 5.25-in. full-height ESDI hard disk unit for DPX/2 100	4,095	130
MSUL201	338MB 5.25-in. hard disk for DPX/2 150	3,750	300

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Model	Description	Price ($)	Maint. ($)
Mass Storage Devices (Continued)			
MSUL202	675MB 5.25-in. hard disk for DPX/2 150		
MSUL203	1GB 5.25-in. hard disk for DPX/2 150		
MSU3601	155MB 5.25-in. full-height SCSI hard disk unit for DPX/2 200 & 300	2,900	277
MSU3602	338MB 5.25-in. full-height SCSI hard disk unit for DPX/2 200 & 300	3,750	300
MSU3603/MSU3607	675MB 5.25-in. full-height SCSI hard disk unit for DPX/2 200 & up	5,950	455
MSU3608/MSU3611	1GB 5.25-in. full-height SCSI hard disk unit for DPX/2 200 & up	9,500	665
MSU3606	5.25-in. optical disk unit with SCSI interface, 2x326MB capacity	7,000	988
Magnetic Tape Devices			
CTU 1963	150MB internal cartridge tape unit for DPX/2 100	1,240	65
MTUL201	525MB Integrated SCSI Streamer for DPX/2 150	1,590	160
MTU3602	150MB half-height cartridge tape unit for DPX/2 200 & 300	1,910	200
MTU3611/MTU3612	2.3GB full-height cartridge tape unit for DPX/2 200 & up	6,300	715
MTU3610-A00	GCR/PE 6250/1600bpi magnetic tape unit for DPX/2 200 & up	16,000	1,600
Printers			
PRT4402	Model 4/40; 100-column matrix printer, 300 cps (DQ), 70 cps(LQ) with Centronics interface, add $50 for RS232/422 interface	1,245	195
PRT4412	Model 4/41; 136-column matrix printer, 300 cps (DQ), 70 cps(LQ) with serial interface or Centronics interface	1,545	225
PRT4432	Model 4/43; 136-column matrix printer, 360 cps (DQ), 100 cps(LQ) with Centronics interface, add $50 for RS232/422 interface	1,995	275
PRT4662	Model 4/66; 136-column matrix printer, 480 cps (DQ), 75 cps(LQ) with Centronics interface, add $155 for RS232/422 interface	2,395	350
PRT4682	Model 4/68; 136-column matrix printer, 600 cps (DQ), 150 cps(LQ) with Centronics interface.	2,545	450
PRT7500	Model 75; 8PPM with Centronics and RS232 interfaces	2,695	400
PRT7265	Model 85; 15PPM with Centronics interface	6,950	100
PRU0881-A0A	325 LPM Band printer, for DPX/2 200 and 300	8,200	1,100
PRU0882-A0A	650 LPM Band printer, for DPX/2 200, 300 and 500	10,800	1,450
Terminals			
HDS7101-001	BDS 1 Terminal and Keyboard Unit, green phosphor (amber), less cable	595	85
HDS7403-001	BDS 3 Terminal and Keyboard Unit, green phosphor (amber), less cable	750	95
XSTL1244EN	X-TERMINAL with 14 color monitor, M68020 microprocessor, 4MB memory, with Ethernet or 10 BaseT interface	3,000	180
XSTL1248EN	X-TERMINAL with 14 color monitor, M68020 microprocessor, 8MB memory, with Ethernet or 10 BaseT interface	4,000	240
XSTL1052EN	X-TERMINAL with 15 monochrome monitor, M68000 microprocessor, 2MB memory, with Ethernet or 10 BaseT interface	1,495	90
XSTL1055EN	X-TERMINAL with 15 monochrome monitor, M68000 microprocessor, 5MB memory, with Ethernet or 10 BaseT interface	2,245	135
XSTL1274EN	X-TERMINAL with 17 color monitor, M68020 microprocessor, 4MB memory, with Ethernet or 10 BaseT interface	4,500	300
XSTL1278EN	X-TERMINAL with 17 color monitor, M68020 microprocessor, 8MB memory, with Ethernet or 10 BaseT interface	5,500	360

Software License Fees

Product Number	Description	Level 1 Initial Lic. Fee ($)	Annual Basic Support ($)
Operating Systems			
DPX/2 100			
SXS3030-L1AT	BOS/X86 operating system including runtime, DOS file facilities, C-ISAM, and virtual terminal support for two users	NSC	60
SXS3031-L1T	BOS/X86 operating system as above including runtime to an unlimited number of users.	195	25
SXS3033-L1AT	BOS/X86 Software Development System including C compiler, assembler syntax checker, symbolic debugger, linkers and other development tools (sccs, make, yacc, etc).	695	85
SXS3034-L1AT	VP/ix Environment (DOS under UNIX) for two users	395	50
ZXS3030-L1AT	Level 1 Update Subscription Service, per year all software	—	250

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Product Number	Description	Level 1 Initial Lic. Fee ($)	Annual Basic Support ($)
DPX/2 100 (Continued)			
SXS3048-L1A	SCO Open Desktop Base includes runtime, TCP/IP, NFS and DOS UNIX for DPX/2 150, up to 2 users, diskette media	1,295	155
SXS3052-L1A	SCO UNIX S V386 Operating system, multiuser	895	100
DPX/2 200			
SXS3095-L7AT	BOS/68K 2.0 operating system includes development system and C compiler for up to 16 users. Level 1 customer.	1,300	160
DPX/2 500			
SXS3400-L2AT	BOS/RISC operating system includes TCP/IP, Network File System, and C RISCompiler for up to 64 users. Level 1 customer.	11,000	1,320
Languages			
DPX2/100			
SXL3070-L1AT	Green Hills C Compiler	680	80
SXL3071-L1AT	Green Hills Pascal Compiler	900	110
SXL3072-L1AT	Green Hills FORTRAN Compiler	900	110
SXL3077-L1AT	Micro Focus COBOL/2 Compiler	2,500	300
DPX2/200			
SXL3056-L6AT	C + + Compiler	1,500	180
SXL3002-L6AT	Green Hills Pascal Compiler	2,000	240
SXL3001-L6AT	Green Hills FORTRAN Compiler	2,000	240
SXL3230-L6AT	Micro Focus COBOL/2 Compiler, up to 16 users	2,500	300
DPX/2300			
SXL3035-L6AT	RM/COBOL-85 Compiler (Mono processor)	3,370	405
DPX2 500			
SXS3400-L2AT	FORTRAN RISCompiler	2,600	310
SXS3401-L2AT	Pascal RISCompiler	2,600	310
SXS3402-N2AT	MF COBOL/2 Development Version includes compiler, FORMS-2 and ANIMATOR. Up to 64 users.	11,200	1340
User Interface			
DPX/2 100			
SXU3050-L1AT	386/ix X11.3 Windowing System Runtime Version, unlimited users	295	35
SXU3051-L1AT	386/ix X11.3 Windowing System Development System	795	95
SXU3141-L1AT	Bull/Motif Graphical User Interface	200	25
SXU3056-L1AT	DOS Bridge Module for PC-Interface, one copy per networked PC	500	60
SXU3052-L1AT	Document Processing Facility, based on Documenter's Workbench, supports unlimited users	345	70
DPX/2 200			
SXU3009-L7AT	Document Porcessing Facility with Postscript filter based on Documenter's Workbench	450	55
SXU3031-L7A	X Window System V.11.3, includes Bull/Motif, Utilities, Terminal Emulation, X-LIB interface and X-Tool Kit	600	75
SXU3034-L7AT	Bull/Motif Graphical User Interface	300	35
SXU3009-L7AT	Document Processing Facility with Postscript filter based on Documenter's Workbench for up to 32 users	650	80
SXU3031-L7A	X Window System V.11.3, includes Bull/Motif, Utilities, Terminal Emulation, X-LIB interface and X-Tool Kit	600	75
SXU3051-L7AT	Bull/Motif Graphical User Interface	400	50
DPX/2 500			
SXU3406-L2AT	X Window System V.11.3, includes Bull/Motif, Utilities, Terminal Emulation, X-LIB interface and X-Tool Kit	2,400	290

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Product Number	Description	Level 1 Initial Lic. Fee ($)	Annual Basic Support ($)
Database Management Systems			
DPX/2 100			
SDX3200-U1AT	ORACLE RDBMSA (V6.0.27), includes PL/SQL for single user	2,000	240
DPX/2 200			
SXD3537-U7AT	ORACLE RDBMSA (V6.0.27), for up to 8 users	4,600	552
DPX/2 300			
SXD3680-U7AT	ORACLE RDBMSA (V6.0.27), for up to 16 users	12,650	1,518
DPX/2 500			
SXD3820-U2AT	ORACLE RDBMSA (V6.0.27), for up to 16 users	13,000	1,560
Office Automation			
DPX/2 200			
SXU3205-L7AT	UNIPLEX II PLUS, Rel. 7 Base 1 for up to 8 users, includes Screen builder, word processing, spreadsheet, business graphics	3,440	415
SXU3206-L7AT	UNIPLEX II PLUS, Rel. 7 Base 2 for up to 8 users, includes above with links to INFORMIX and ORACLE RDBMS	3,440	415
DPX/2 300			
SXU3201-L7AT	UNIPLEX II PLUS, Rel. 7 Base 1 for up to 32 users, includes Screen builder, word processing, spreadsheet, business graphics	6,300	760
SXU3202-L7AT	UNIPLEX II PLUS, Rel. 7 Base 2 for up to 32 users, includes above with links to INFORMIX and ORACLE RDBMS	6,300	760
Communications Software			
DPX/2 100			
SXC3054-L1AT	386/ix TCP/IP	550	70
SXC3051-L1AT	386/ix Network File System up to 2 users, requires TCP/IP	550	70
SXC3110-L1AT	BSC 3270 Emulator	900	100
SXC3115-L1AT	SNA LU 6.2	1,870	220
SXC3116-L1AT	SNA Document Interchange Architecture, requires LU 6.2	950	110
SXC3117-L1AT	SNA Distribution Services (SNADS), requires LU6.2	900	110
SXC3118-L1AT	X.25 with XPAD	1,300	160
DPX/2 200			
SXC3009-L7AT	TCP/IP Internet Package TCP/IP Protocol, includes FTP file transfer, SMTP Elec. Mail, TELNET Virtual Terminal Mgt., remote commands and Socket Interface	1,000	120
SXC3003-L7AT	Network File System including Remote Procedure Call and External Data Presentation	1,000	120
SXC3039-L7AT	SNA Document Exchange (DIA/DSTAR), includes LU 6.2, PU2.0/2.1 SDLC Protocol, QLLC, X.25 support	2,250	270
SXC3041-L7AT	UNIX/SNA LU6.2 API, includes LU6.2, PU2.0/2.1 SDLC Protocol, QLLC, X.25 support	1,970	240
SXC3096-L7A	Kermit pass-through providing file transfer between DPX/2 PCs and Bull host systems	100	15
DPX/2 300			
SXC3010-L7AT	TCP/IP Internet Package TCP/IP Protocol, includes FTP file transfer, SMTP Elec. Mail, TELNET Virtual Terminal Mgmt., remote commands and Socket Interface for single processor	1,500	180
SXC3011-L6A	TCP/IP Internet Package as above, upgrade from single to multiprocessor system	3,450	415