Data General Corp.
ECLIPSE MV/Family

In this report:

Note: Data General's stock has rebounded in recent times. The change in perception is due to the success of DG's UNIX-based AViiON RISC technology, changes in the company's top management, and cost cutting that drastically reduced the number of DG employees and facilities around the world. The ECLIPSE MV/Family of VLSI CMOS machines complements that strategy by bridging the gap between DG's older proprietary technologies and today's open systems based on industry standards.

This current midrange line implements DG's 10-year-old proprietary 32-bit ECLIPSE architecture on a single microprocessor, thereby providing greater economy, speed, and reliability. The ECLIPSE MV/Family of minicomputers represents Data General's entry in the distributed-processing sweepstakes. DG touts the ECLIPSE MV/Family as a cost-effective way to link a mainframe host and networked PCs and workstations for enterprise-wide distributed processing and interoffice communication. Interoperable with DG's new AViiON line of UNIX systems and DG's earliest proprietary operating systems, the ECLIPSE MV/Family links DG's existing customer base with the new world of open systems. This provides an upgrade path for customers who are heavily invested in applications tied to DG's aging 32-bit AOS/VS, and its 16-bit AOS ECLIPSE, DESKTOP GENERATION, and RDOS microECLIPSE operating systems. Announced in April 1990, the redesigned line promises a wide variety of capabilities and packaging options. The first two low-end models shipped by the end of 1990. Fifteen months after the announcement, the new line was complete and DG had begun implementing upgrades to the early models in the line.

Strengths

- Lower cost per MIP than Digital Equipment Corp. or IBM

- Credible overall performance.

- Interoperability with industry-standard operating systems such as UNIX and PC LANs, as well as old DG proprietary operating systems.

- Provides a platform for a superior office automation package (DG's own CEO) and is well suited as an enterprisewide server for multiple clients on a network

- Can communicate with mainframes.

Limitations

- Performance perceived as slow and support perceived as costly by some users.

- DG's image could make these proprietary systems a hard sell in the executive suite.

Competition

Digital MicroVAX 3000 Series, 3800 Series, and VAX 6000 Model 500; HP 3000 and 9000 Series; IBM AS/400-C20 & C25, and IBM 4300 and 9370; NCR 3000 Series; Prime 50 Series; Wang VS Series.

Vendor

Data General Corp.
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(416) 567-8340
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Price

Prices range from $12,000 for the MV/1000 DC with 4MB memory to $1,585,000 for the Model 4 version of the MV/40000 HA with 128MB memory. **GSA Schedule:** Yes.

—By Robert E. Viator

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Product Analysis

Data General's ECLIPSE MV/Family is an upgraded functional extension of the company's 10-year-old 32-bit MV line. This new midrange line differs in that the central processing unit (CPU) is implemented on a single semiconductor. According to DG, models range from a desktop package that supports 24 office automation (OA) users, to rackmount models capable of supporting several hundred users, to freestanding models that serve up to 742 office automation users.

Very large scale integrated (VLSI) circuitry has enabled DG designers to squeeze an entire CPU onto a single semiconductor chip for greater processing speed and reliability. Benefiting from complementary metal-oxide semiconductor (CMOS) technology, the chip uses electric power more efficiently, resulting in lower operating temperatures and, consequently, longer life expectancy. Because of these improvements in circuitry, an entire computer now fits on a single circuit board.

While the new CPU was designed by DG engineers, the chips are manufactured for DG by Hitachi Data Systems Corp. in Japan.

Target Applications

- Office Automation
- Information Management
- Database Management

Strengths

Data General, which historically has provided its customers with upward mobility within its own product line, has mended its proprietary ways. With ECLIPSE. DG offers its customers a growth path into the world of open systems and off-the-shelf software solutions from many vendors.

The ECLIPSE MV/Family is less expensive per MIP than comparable machines from Digital Equipment and IBM. Its performance levels put it in the same class with the Digital MicroVAX 3000 Series, the IBM AS/400-C20, the Hewlett-Packard HP 9000 Series, NCR Corp.'s 3000 Series, and Wang Laboratories' Wang VS Series.

Although based on a proprietary architecture, the ECLIPSE MV/Family links PC and Macintosh LANs to databases using networking protocols such as Novell's NetWare, AppleTalk Phase II, and TCP/IP, and mainframe communication protocols such as IBM's System Networking Architecture (SNA) and CCITT X.25. Thus, DG can offer a credible three-tier desktop-to-mainframe networking strategy.

The ECLIPSE MV/Family provides a platform for a superior office automation package: DG's own CEO. Easy to use and available with screen information translated into

Overview Tables

Product Name	MV/1000 DC	MV/3500 DC	MV/5600 DC	MV/9300	9600
Base Price	$12,000	$25,500	$55,000	$35,000	$72,800
Design	VLSI/CMOS	VLSI/CMOS	VLSI/CMOS	VLSI/CMOS	VLSI/CMOS
Date Announced	4/89	8/90	7/91	7/91	7/91
Date Delivered	5/89	9/90	8/91	8/91	8/91
No. Users	24	42	145	75	159

Product Name	MV/30000	MV/30000	MV/30000	MV/30000
Model/Version	Model 1	Model 2	Model 3	Model 4
Base Price	$120,000	$190,000	$283,200	$385,800
Design	VLSI/CMOS	VLSI/CMOS	VLSI/CMOS	VLSI/CMOS
Date Announced	10/90	10/90	10/90	10/90
Date Delivered	11/90	11/90	11/90	11/90
No. Users	123	220	306	392

Product Name	MV/40000	MV/40000 HA	MV/40000 HA	MV/40000 HA	MV/40000 HA
Model/Version	—	Model 1	Model 2	Model 3	Model 4
Base Price	$464,900	$614,200	$886,450	$1,244,950	$1,563,450
Design	VLSI/CMOS	VLSI/CMOS	VLSI/CMOS	VLSI/CMOS	VLSI/CMOS
Date Announced	10/88	10/88	10/88	10/88	10/88
Date Delivered	12/88	1/89	1/89	1/89	1/89
No. Users	232	232	418	580	742

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Decision Points

Requirements	Performance	Comments
Compute Performance	The Eclipse MV/Series varies in processing performance from 1 MIP in the MV/1000 DC to 50 MIPS in the MV/4000 HA multi-processor series.	The low- to midrange Eclipse models are generally considered at the low end of the performance scale in terms of compute/processing speed.
System Interoperability	The Eclipse MV/Series is interoperable with earlier proprietary AOS/VS operating systems and can link to the AViiON line of UNIX-based workstations, allowing DG customers to salvage their large system investments and communicate with the new open-system architecture.	DG gets favorable marks for interoperability because it has moved from older proprietary systems to the new RISC-based, open-system architecture.
Product Maintenance/Support	The MV Series maintenance and support programs range in price from $79/month for the MV/1000 DC to $4,070/month for the MV/40000 HA Model 4, amounting to roughly one third of Data General's system revenues.	MV Series maintenance and support pricing schedule is considered costly when compared to those of other vendors.
Software	CEO office automation package offers compatibility across the complete product line.	CEO package is regarded favorably due to its operation across existing large proprietary systems as well as the smaller open systems.

English and 20 other languages,CEO offers capable word-processing decision support tools (such as spreadsheets and presentation graphics), and an outstanding electronic mail product that provides transparent E-mail connections to subscribers anywhere in the world. According to DG, the CEO product is used by 500,000 worldwide.

Limitations

Data General may not have lived up to its past reputation for rugged construction and state-of-the-art speed. For example, DG interfaces with IBM often are based on emulators that perform below native-mode interface standards.

Similarly, ECLIPSE customers may not give the new, leaner DG high marks for support—some users have called support "costly."

At this time, Data General is viewed as a smaller, troubled company that may not yet be home free. This image could make justifying purchase of the DG ECLIPSE MV/Family something of a hard sell in the executive suite and board room.

Vendor Analysis

Product Strategy

In the beginning, DG focused on turning out a technologically superior product at a bare-bones price, and used a strategy of moving product through Original Equipment Manufacturers (OEMs) and Value-Added Resellers (VARs). DG then expanded its direct sales force and added overseas branches, and this allowed the company to carve out a comfortable niche as one of the top five minicomputer vendors.

Data General misjudged the appeal of reduced instruction set computing (RISC) and the shift to UNIX solutions. The company was late with a credible version of UNIX and with its UNIX AViiON RISC entry into the emerging distributed processing market. As a result, DG was forced to take its lumps as minicomputer sales slumped and users turned to less expensive solutions built upon UNIX workstations and networked PCs.

Today, DG is wholeheartedly endorsing industry standards and an open systems philosophy. The company is seeking to maintain its customer base, rebuild its traditional VAR and OEM channels, and educate its customer base about its excellent, but little-known office automation product, CEO.

As part of its "return to basics" strategy, DG is offering the ECLIPSE MV/Family product line to provide an upward migration path for its existing customer base, and to provide a credible solution to bridge the gap in capabilities between mainframe hosts and clients on individual workstations and networked PCs.

The MV/Family of minicomputers is critical to DG's stated mission to "provide an alliance of products that work cooperatively, enabling customers to hold onto their previous investments while taking advantage of emerging technologies to meet their evolving computing needs."

Target Markets
Banking, brokerage, general business, government, health, insurance, manufacturing, and travel applications.

Competitive Analysis

Market Position
The latest in the long line of ECLIPSE MV/ Family of minicomputers spans the low- to high-end markets, ranging in capability from the MV/1000 DC, which addresses the distributed data processing and departmental automation requirements of business and industry, to the MV/40000, which is aimed at high-performance computing and data processing for the technical and commercial markets.

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Major Competitors

The ECLIPSE MV/Family competes with a wide range of products from the low to high end, including the IBM AS/400, and its predecessors, the IBM S/36 and S/38, Digital's MicroVAX and VAX series, and Wang Laboratories' WANG VS Series.

In the midrange, the MV/5600 and 9600 compete directly with the Digital MicroVAX 3000 Series and the IBM AS/400 Series. At the high end, the MV/30000 and 40000 go head to head with the Digital VAX 6000 as and the IBM AS/400 Series.

Relationships to Other Markets

Although they do not truly target the same markets, there is a certain degree of overlap between DG's MV/Family and its AViiON UNIX workstations. The high-end AViiON workstation runs certain commercial software solutions that may approach the low-end minicomputers commercial applications. The AViiON series is primarily a family of commercial servers with a line of workstations, while the MV/Family is primarily focused on office and industry automation and data processing markets.

Sales & Distribution Strategy

Traditionally, Data General has distributed systems through OEMs, VARs, and its own direct sales force. OEMs build DG's solidly engineered components into products bearing their own brand name. For example, General Electric's Computer Aided Tomography (CAT Scan) medical imaging machines are built around a DG computer. VARs integrate their own software solutions with DG hardware to sell a complete solution. And the DG direct sales force concentrates on large opportunities to close multisystem deals, referring smaller opportunities to one of more than 1000 Data General VARs. DG also moves supplies and peripherals to its customer base through a telemarketing and catalog operation called DG/DIRECT.

Support

Data General has 27 subsidiaries and more than 300 sales and service offices in the U.S., Canada, Europe, the Far East, and Latin America. Its main customer support center is located in Norcross, GA, and is the site of an education center for customers, field engineers, and sales and systems engineers.

In addition to the support that its VARs provide to their customers, DG offers a full range of services through its sales and service offices. Telephone technical support is available from Westboro, MA, through the main switchboard at (508) 366-8911. For post-shipment technical problems, DG maintains a toll-free number to the Westboro office (800) 537-6084.

For most of the models in the MV/Family, Data General provides remote diagnostic technical support as an options, available to customers on machines that are hooked up to a modem. This enables a DG support engineer using terminal emulation to sign on to DG computers at remote locations and diagnose many kinds of problems without having to visit the site.

Data General offers fixed-term, noncancellable leasing for periods of 3, 5 and 7 years. DG leasing often covers 100% of the cost of DG hardware and related software fees. Lease payments are payable monthly. Maintenance and insurance are not included. Penalties are imposed to reinstate a lease that is allowed to lapse.

Competitors' Programs

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

Hewlett-Packard offers several maintenance plans for its hardware. The Basic Monthly Maintenance agreement offers next day, on-site maintenance from 8 a.m. to 5 p.m., or up to 24 hours a day, 5 days a week. The Standard Monthly Maintenance agreement offers on-site service with a 4-hour response time from 8 a.m. to 9 p.m., or up to 24 hours a day, 7 days a week. The Per-Call plan offers service on a time and materials basis.

IBM's Service Plan allows users to order any or all IBM services through a single document that 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), customer assistance groups (CAGs), remote diagnostics and technical support by calling (800) IBM-SERV. In addition, IBM offers Technical Services Management (TSM), which provides maintenance for customers in a mixed-vendor environment.

NCR services all its own hardware. Authorized third-party service is provided only by NCR-authorized resellers who are in NCR's ProTech III program. ProTech III resellers offer both hardware maintenance and a software Help Desk. NCR provides a toll-free telephone number of hardware and software support.

Policies and Programs

Warranty

Data General hardware comes with a 90-day limited warranty on service and parts, whether purchased through a reseller or directly.

Support Services

On-Call Service is available from Norcross, GA, from 8 a.m. to 6 p.m. Monday through Friday for a monthly charge. For the ECLIPSE MV/40000 series, 24-hour service is available. Maximum Uptime Service—guaranteeing 96% to 99% availability of a given machine—is available from DG for a surcharge of 10% to 55% on On-Call Service, depending on the percentage of availability required. Data General also offers a Basic Response policy, whereby DG guarantees to respond to all calls within 24 hours. For this lower level of service, DG grants a 10% discount on its On-Call Service program.

Most DG equipment is user installable. However, for a charge of 1.5% to 2% of the purchase price plus expenses,

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DG will install equipment in cases where the order is large or the equipment value is high. Typically, software is installed without charge.

Software maintenance is available in three classes: Basic at $20 (U.S.) per hour; Standard at $80 (U.S.) per hour; and Premium (highly technical) at $100 (U.S.) per hour.

Normal business hours are 8 a.m. to 5 p.m. Monday through Friday. Maintenance during off-hours is available at a flat rate of $115 (U.S.) per hour. Service includes on-site and telephone support for DG's IBM-compatible SNA software.

Extended Consulting: For 3 months, a 20% discount on the normal hourly rate is granted. For 6 months, a 24% discount is offered.

Support Plus Service: Telephone support for 3 designated callers, 5 days a week, includes automatic distribution of software revisions and updates, and on-line access to software and hardware information 24 hours a day.

Integrated Service Program: DG offers lower prices when both hardware and software service contracts are purchased from the company.

Compatible Products Program: Provides repair and maintenance for non-DG computer equipment and peripherals that DG customers have connected to their DG systems.

Network Maintenance: This program includes on-site repair service and telephone software support, as well as service to approved third-party software.

Service Providers

Service is provided through authorized resellers and through more than 300 sales and service outlets around the world. Where appropriate, technical support is available from the Westboro headquarters For postshipment technical problems, DG maintains a toll-free number to the Westboro office: (800) 537-6084.

Service Locations

For information, contact the nearest sales outlet nearest you or DG headquarters in Westboro.

Service Hours

On-Call Service is available from Norcross, GA, from 8 a.m. to 6 p.m. Monday through Friday for a monthly charge. Data General has enhanced its software support to include the expansion of telephone coverage for its key 32-bit software. Support is available 7 days a week, and customers have access to an On-line Information Service.

Training/Education

Data General offers a broad curriculum of classroom courses, technical seminars, and computer-based training (CBT). In addition, tutorial information is included in DG documentation and the on-line HELP functions built into the software. For information on formal training courses, get in touch with the DG sales outlet nearest you or DG headquarters.

Documentation

Documentation is bundled with the products. Additional copies of documentation can be ordered through the local sales and service outlet or through DG/DIRECT.

Upgrade Policies

The entire ECLIPSE MV/Family of 32-bit computers was designed to make it easy for Data General customers to upgrade to industry standard equipment from DG's older proprietary systems. Individual machines within the ECLIPSE MV/Family are easily upgradeable, often simply by changing a single circuit board within the same cabinet. Specific upgrades must be negotiated directly with a DG representative.

User Groups

User groups exist in a number of cities around the world. Contact the nearest Data General sales and service outlet for information or call Data General in Westboro, MA, at (508) 366-8911.

Specifications

Enhancements

Date	Event
July 91	Introduces three new models to the ECLIPSE MV/Family, replacing similar machines introduced announced in April 1990. The MV/5600 DC replaces the MV/5500, and the MV/9300 and MV/9600 replace the MV/9500.

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Features/Functions

Model	MV/1000 DC	MV/3500 DC	MV5600 DC	MV/9300	MV/9600	MV/30000 Model 1
Model Characteristics						
Processor Model	Eclipse MV	VLSI CMOS Eclipse	VLSI CMOS Eclipse	VLSI CMOS Eclipse	VLSI CMOS Eclipse	VLSI CMOS Eclipse
Processor Type	CISC	CISC	CISC	CISC	CISC	CISC
Number Of Processors	1	1	1	1	1	1
Floating Point Processor Model	built-in	built-in	built-in	built-in	built-in	built-in
Min/Max Memory (bytes)	4/12M	4/16M	16/128M	8/128M	8/128M	16/256M
Memory Type	1M-bit SIMM	1M-bit SIMM	1-4M-bit DRAM	1M-bit DRAM	1M-bit DRAM	1M-bit DRAM
Expansion Increments (bytes)	2M, 4M, 8M	4M	8M, 32M	8M, 32M	8M, 32M	16M, 32M, 64M
Cache Memory (bytes)	—	4K	64K	64K	64K	64K
Min/Max Internal Mass Storage (bytes)	40/322M	179/662M	332M/8G	600M/19.2G	600M/19.2G	—
Max External Storage (bytes)	1.28G	4G	13G	76.8G	76.8G	768G
Word Size (bits)	32	32	32	32	32	32
Battery Backup	UPS	SPS/UPS	SPS/UPS	BBU/UPS	BBU/UPS	BBU/UPS

SPS—standby power supply; BBU—battery backup; UPS—uninterruptible power supply.

General Performance						
MIPS	1	3	7	3	7	5
Processor Cycle Time (ns)	160	NA	50	50	50	50
Max I/O Data Rate (bytes/sec)	8M	4M	4M	11M	15M	29M

NA—Not available.

Input/Output Control						
Number of IOPs	2	8 or 16	16	14	14	3
Number of Channels/Transfer Rate	56KB/s	4MB/s (1) 2MB/s (2)	4MB/s (1) 2MB/s (2)	2MB/s (DCH), 15MB/s (BMC)	2MB/s (DCH), 15MB/s (BMC)	3MB (DCH), 28MB (BMC)

(1) Synchronous.
(2) Asynchronous.
(3) ECS—Eclipse Channel Subsystem, MRC—Message-based Reliable Channel, BMC—Burst Multiplexor Channel, DCH—Data Channel, MFM—Modified Frequency Modulation.

Model	MV/30000 Model 2	MV/30000 Model 3	MV/30000 Model 4	MV/40000
Model Characteristics				
Processor Model	VLSI CMOS ECLIPSE	VLSI CMOS ECLIPSE	VLSI CMOS ECLIPSE	VLSI CMOS ECLIPSE
Processor Type	CISC	CISC	CISC	CISC
Number of Processors	2	3	4	1
Fl. Pt. Processor Model	built-in	built-in	built-in	built-in
Min/Max Memory (bytes)	16/256M	16/256M	16/256M	32/128M
Memory Type	1M-bit DRAM	1M-bit DRAM	1M-bit DRAM	1M-bit DRAM
Expansion Increments (bytes)	16M, 32M, 64M	16M, 32M, 64M	16M, 32M, 64M	16M, 32M
Cache Memory (bytes)	128K	192K	256K	64K
Max. Mass Storage (bytes)	768G	768G	768G	544G
Word Size (bits)	32	32	32	32
Battery Backup	BBU/UPS	BBU/UPS	BBU/UPS	BBU/UPS

General Performance				
MIPS	9	14	19	14
Processor Cycle Time (ns)	50	50	50	50
Max I/O Data Rate (MB/sec)	29	29	29	160

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Features/Functions (Continued)

Input/Output Control
Model

Number of IOPs	3	3	3	3
Number of Channels/Transfer Rate (bytes)	3M (DCH), 28M (BMC)	3M (DCH), 28M (BMC)	3M (DCH), 28M (BMC)	20M (ECS), 50M (MRC)

Model	MV/40000 HA Model 1	MV/40000 HA Model 2	MV/40000 HA Model 3	MV/40000 HA Model 4
Model Characteristics				
Processor Model	VSLI CMOS ECLIPSE	VSLI CMOS ECLIPSE	VSLI CMOS ECLIPSE	VSLI CMOS ECLIPSE
Processor Type	CISC	CISC	CISC	CISC
Number Of Processors	1	2	3	4
Fl. Pt. Processor Model	built-in	built-in	built-in	built-in
Min/Max Memory (bytes)	64/256M	64/256M	96/256M	128/256M
Memory Type	1M-bit DRAM	1M-bit DRAM	1M-bit DRAM	1M-bit DRAM
Expansion Increments (bytes)	16, 32B	16, 32B	16, 32B	16, 32B
Cache Memory (bytes)	64K	128K	192K	256K
Max External Storage	1152G	1152G	1152G	1152G
Word Size	32-bit	32-bit	32-bit	32-bit
Battery Backup	BBU/UPS	BBU/UPS	BBU/UPS	BBU/UPS
General Performance				
MIPS	14	28	41	54
Processor Cycle Time (ns)	50	50	50	50
Max I/O Data Rate (bytes/sec)	160M	160M	160M	160M
Input/Output Control				
Model				
Number of IOPs	4	4	4	4
Number of Channels/Transfer Rate	20MB (ECS), 50MB (MRC)	20MB (ECS), 50MB (MRC)	20MB (ECS), 50MB (MRC)	20MB (ECS), 50MB (MRC)

Peripherals

Hard Disk Storage Devices

Model	6631	6621	6539	6662
Diameter (in.)	8	8	5.25	5.25
Formatted Capacity (bytes)	600M	1.2G	179M	332M
Controller Model	BMC	BMC	SCSI	SCSI
Average Seek Time (ms)	16	16	20	14
Data Transfer (MB/sec)	1.94	1.94	0.875	1.66
Supported by System Models	MV/5600 and larger	MV/5600 and larger	MV/5600 and smaller	All MVs (except 30000)

Model	6554	6685	6670 Series	6627
Diameter (in.)	5.25	5.25	NA	5.25
Formatted Capacity (bytes)	662M	1.0G	332/662M	590/650M
Controller Model	SCSI	SCSI	BMC, SCSI	SCSI
Average Seek Time (ms)	16.5	15	14/16.5	104
Data Transfer (bytes/sec)	1.63M	2.16M	1.7M	620/680K
Supported by System Models	All MVs (except 30000)	MV3500, 5600, 40000	All MVs	MV/40000

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Peripherals (Continued)

Tape Devices

Model	6577	6677	6351	6590, 6591
Type	Cartridge	Cartridge	Cartridge	Cartridge
Size (in.)	.25	.25	.15	8 mm
Format				
Recording Density (bpi)	10K	16K	10K	43K
Recording Mode	QIC	QIC	MFM	Helical
Characteristics				
Controller Model	SCSI	—	BMC	—
Unformatted Storage Capacity	150MB	525MB	21.5MB	2GB
Tape Speed (ips streaming)	90	120	50	150
Data Transfer Rate (KB/sec)	112.5	240	44	246
Supported on Workstation Models	All MVs	All MVs except 1000 and 30000	All except 1000, 3500	All MVs

Model	6299, 6300	6586, 6587	6588, 6589
Type	reel-to-reel	reel-to-reel	reel-to-reel
Size (in.)	.50	.50	.50
Format			
Recording Density (bpi)	1600 (PE), 6250 (GCR)	1600,	6250 (GCR), 1600 (PE), 800 (NRZI)
Recording Mode	PE and GCR	PE	GCR, PE, NRZI
Characteristics			
Controller Model	—	—	—
Unformatted Storage Capacity (MB)	21.5	21.5	84 (GCR)
Tape Speed (ips streaming)	50	100/25	125/25
Data Transfer Rate (KB/sec)	312	160/40	300 (GCR)
Supported on Workstation Models	MV/9300, 9600, 10000, 30000	All MVs except 1000	All MVs except 1000 and 3500

Printers

Model	6671, 6772, 6773	6640, 6779, 6646	6617, 6618	6647, 6648
Type	Laser	Laser	Matrix line	Matrix
Speed	16 ppm	6 ppm	450/600 lpm	300/250/63CPS (2)
Graphics Resolution	300 dpi	300 dpi	9 x 7 matrix	7x9/9x9/17x17 (2)
Interface/Controller	Centronics parallel (1)	Centronics parallel (1)	Centronix parallel/ RS-232C serial	Centronix parallel

Model	6594	18783	6514, 6515	4598, 4599, 1500, 2000
Type	Matrix	Matrix	Matrix	Band
Speed	600/400/240/100 (2) cps	400/180/120 (2) cps	300/100 (2) cps	1500/2000 (2) lpm
Graphics Resolution	7x9/9x9/19x19/32x18 (2)	9x7/9x15/18x20 (2)	12x24/36x24 (2)	—
Interface/Controller	Centronix parallel/ RS-232C serial	Centronix parallel/ RS-232C serial	Centronix parallel/ RS-232C serial	Centronix or Dataproducts parallel

(1) Other options available.
(2) Depending on mode.

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Peripherals (Continued)

Workstations/Terminals

Model	D217	D216E	D413	D463	D230C
Screen Size (in.)	14	14	14	14	14
Screen Size (lines x characters)	25 x 80	25 x 80	25 x 81/135	25 x 81/135	24 x 80
Symbol Formation	10 x 12	10 x 16	10 x 12	10 x 12	7 x 10
Character Phosphor	Green or Amber	Green or Amber	Green or Amber	Green or Amber	Color
Max No. Simultaneous Colors/Grays	two	two	two	two	multicolor
Interface	RS-422/RS-232D	RS-422/RS-232D	RS-422/RS-232D	RS-422/RS-232D	RS-422/RS-232C

Other Peripherals

Model	Type	Description
DNA	Optical disk drive	590MB read/write optical disk (SCSI)

Communications

Networking Features

Network Interfaces	Ethernet/IEEE 802.3
Network Protocols Supported	TCP/IP, SNA/SDLC, X.25
Network Applications	Portable Netware

Communication Processor

Model	MV/1000DC	MV/3500DC	MV5600DC	MV9300/9600	MV/30000	MV/40000	MV/40000HA
Number of Lines (asynchronous)	32	56	208	624	2472	2928	4224
Number of Channel Adapters	2	3	6	24	—	—	—

Software

Operating System	AOS/VS, AOS/VSII, DG/UX, and DG/RDOS
UNIX Implementation	DG/UX
Complied Standards	AT&T, Berkeley
Compilers	Fortran, C, PascalL, Basic, APL, Cobol, PL1, RPGII, Ada, Common LISP
DBMS(s)	DG/DBMS (CODASYL-compliant), INFOSII, DG/SQL, DG/DATA
Application Development Tools	SGU (screen generator utility), SWAT (source code debugger)
Communications Software	XODIAC, XTS
Graphical User Interface	OSF/Motif

Other Software

Package	Source	Description
CEO	Data General	Office Automation
Present	Data General	Information Presentation
Decision Base	Data General	Decision Support
TrendView	Data General	Technical Graphics

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Security Features

Operating System	UNIX System V security features
NCSC Security: Date/Level	Name and password
File Encryption Capabilities	NA
Tempest Version Available	NA

NA—Not available.

Configuration

Components	CPU, Main Memory, Disk Drive, Tape Drive, Workstation Controller, Workstation Display, Printer
Sample Configuration	High-end MV/4000, 32M, five 6685 disk drives, 6586 reel-to-reel, 11xIAC (16 Channels), 145-D413 displays, 12 dot matrix printers

Physical Environment

Model	MV/1000 DC	MV/3500 DC	MV5600 DC	MV/9300	MV/9600 Model 1
Physical Specifications					
Height x Width x Depth (in.)	6.25 x 19.25 x 16.25	6.25 x 19.25 x 16.25	24.75 x 11.75 x 22.5	10.5 x 19 x 27.5	10.5 x 19 x 27.5
Weight (lb.)	45	45	110	103	103
Electrical Specifications					
Max Power Consumption (Amp)	120	120	120	120	120
Operating Environment					
Temperature Range (F°)	50-100	50-100	50-100	32-100	32-100
Humidity (%)	10 to 90	10 to 90	10 to 90	10 to 90	10 to 90
Heat Output	2559 (750 watts)	2559 (750 watts)	2559 (750 watts)	3921 (1150 watts)	3921 (1150 watts)
Cooling	—	1 DC Fan	3 Fans	—	—

Model	MV/30000 Model 1	MV/30000 Model 2	MV/30000 Model 3	MV/30000 Model 4	MV/40000 Model
Physical Specifications					
Height x Width x Depth (in.)	15.75 x 17.5 x 27	15.75 x 17.5 x 27	15.75 x 17.5 x 27	15.75 x 17.5 x 27	53 x 46 x 28.3
Weight (lb.)	126	126	126	126	952
Electrical Specifications					
Max Power Consumption (Amp)	208	208	208	208	120/208
Operating Environment					
Temperature Range (F°)	32-131	32-131	32-131	32-131	32-100
Humidity (%)	10 to 90	10 to 90	10 to 90	10 to 90	10 to 90
Heat Output	7938 (2328 watts)	7938 (2328 watts)	7938 (2328 watts)	7938 (2328 watts)	7938 (2328 watts)

Model	MV/40000 HA Model 1	MV/40000 HA Model 2	MV/40000	MV/40000 HA Model 4
Physical Specifications				
Height x Width x Depth (in.)	53 x 46 x 28.3	53 x 46 x 28.3	53 x 46 x 28.3	53 x 46 x 28.3
Weight (lb.)	952	952	952	952
Electrical Specifications				
Max Power Consumption (Amp)	120/208	120/208	120/208	120/208

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Physical Environment (Continued)

Operating Environment

Temperature Range (F°)	32-100	32-100	32-100	32-100
Humidity (%)	10 to 90	10 to 90	10 to 90	10 to 90
Heat Output (BTU/hr)	13139 (3853)	13139 (3853)	13139 (3853)	13139 (3853)

Comments — Some larger models require expansion chassis

Compatibility

Standards Supported — TCP/IP, SNA, X.25, Ethernet/IEEE 802.3

Pricing

Model	Price ($)
Systems	
MV/1000 DC	8,150
MV/3500 DC	19,700
MV/5600 DC	55,800
MV/9300	35,000
MV/9600	90,000
MV/30000 M1	120,000
MV/30000 M2	190,000
MV/30000 M3	283,200
MV/30000 M4	385,800
MV/40000	464,900
MV/40000 HA M1	614,200
MV/40000 HA M2	886,450
MV/40000 HA M3	1,244,950
MV/40000 HA M4	1,563,450

Additional pricing was not available from the vendor.
Some operating systems come bundled. All other software is sold unbundled. Get details from your Data General representative.
Discounts from list price, if applicable, are based on annual dollar volume.
Machines come with a 90-day limited warranty on service and parts, whether purchased through a reseller or directly. Data General considers its maintenance prices competitive information and will not quote these prices outside the context of a sale.
Data General offers fixed-term, noncancellable leasing for 3-, 5-, and 7-year periods for up to 100% of the cost of hardware; lease payments are payable monthly. Maintenance and insurance are not included. Penalties are imposed to reinstate a lease that has lapsed. For specific leasing questions, contact DG Leasing at (508) 870-9680. ■