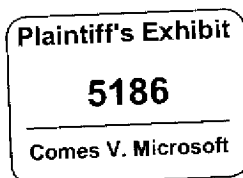




Digital Research

WE MAKE COMPUTERS WORK

CR448735



MS-CCP-MDL 5010617

MS-CCPMDL 000005010617

DIGITAL RESEARCH
CONFIDENTIAL

PRODUCT REQUIREMENT
DOCUMENT

Do Not Duplicate

DR DOS Futures

PANTHER & BUXTON

GPOS Product Marketing

Version 1.1

November 1990

Copy : Number Eleven of Fifteen
Glen Savona

C0449735

MS-CCP-MDL 5010618

MS-CCPMDL 000005010618

INDEX

Scope and Purpose	Page 1
Objectives	Page 2
DR DOS Business Strategy	Page 3
Development Parameters	Page 4
Product Roadmap	Page 5
Sales History	Page 6
Market Share Estimation	Page 7
Competition	Page 8
General Market Overview	Page 9
Total Addressable Market	Page 12
General SWOT	Page 13
Market Segmentation Definition	Page 14
Market Segment Quantification	Page 15
Departmental Segment:	Page 16
- Segment Dynamics : Trends And Analysis	-
- Swot Analysis	-
Corporate Desktop Segment	Page 18
- Segment Dynamics : Trends And Analysis	-
- Swot Analysis	-
Low End Segment	Page 20
- Segment Dynamics : Trends And Analysis	-
- Swot Analysis	-
Lite / Portables Segment	Page 22
- Segment Dynamics : Trends And Analysis	-
- Swot Analysis	-
Special Segment	Page 24
- Segment Dynamics	-
- Swot Analysis	-

00449736

Digital Research - Company Confidential

MS-CCP-MDL 5010619

MS-CCPMDL 000005010619

Product Positioning Statement	Page 26
Rational For Buxton	Page 27
Parity Product Features Specification for Buxton	Page 28
Product Differentiation Features for Buxton	Page 30
Rational for Panther	Page 32
Targeted Additional Functionality for Corporate Desktop Market	Page 33
Targeted Additional Functionality for Lite Segment	Page 35
Appendix One : Probable Feature Set for MS DOS 3.0	Page 37
Appendix Two : Additional Functionality for Panther for Engineering Consideration	Page 39

C0949737

MS-CCP-MDL 5010620

MS-CCPMDL 000005010620

Product Marketing Strategy and Market Analysis

PURPOSE AND SCOPE OF THIS DOCUMENT

This document details the proposed future development of DR DOS in terms of :

- New and enhanced features and functionality.
- New product version availability dates

These planned developments are justified in terms of market opportunity and revenue potential, based on a definition, quantification and analysis of the trends of market segments.

The proposed new features are defined in terms of

- Increased user benefits
- Increased user/OEM appeal
- Exploitation of focal product features.
- Achievement of parity with competitive products.
- Maintenance of technical lead over competitive products.

This document also prioritizes the proposed product development in terms of key product feature/market segment.

This document is set out in three sections :

- Section One details the Product Marketing Strategy for DR DOS based on an analysis of market dynamics.
- Section Two identifies the need for Buxton and details its desired product specification.
- Section Three identifies the need for Panther and details its desired product specification.

00449730

Product Marketing Strategy and Market Analysis

OBJECTIVES

The Product Marketing Objective for DR DOS is to capture a total of 18% market share of the installed DOS based PC's by 1994.

To accomplish this the following annual licence sales targets need to be achieved :

	1991	1992	1993	1994
k units	1,800	3,825	6,675	6,336
\$million	25.2	53.55	93.45	88.70

Revenue is based on an average unit price of \$ 14 see Sales History

The Strategic Marketing Objectives for DR DOS are :

- To close a " Flagship " OEM account.
- To obtain extended penetration within the Corporate Market.
- To own the industry position as the technical leader in DOS.

The Commercial Objectives of DR DOS are to :

- Maintain and expand the global market presence of DR DOS.
- To facilitate the achievement of the revenue targets for DR DOS.
- To achieve significant and stable revenue/profit as a base for DRI

The Engineering Objectives of the DR DOS new product development programme should be to :

- Develop a stable and quality engineered operating system, requiring minimum on going support and maintenance.

C 0 4 4 9 7 3 9

Product Marketing Strategy and Market Analysis

**DR DOS BUSINESS
STRATEGY**

The Core Business Strategy for DR DOS is :

- Focus limited resources on most important opportunities.
- Improve corporate market visibility/credibility.
- Maintain / recapture technical leadership in DOS.
- Achieve strong, substantiated and unambiguous strategic alliances with major third party vendors.

The implications of this strategy for the product development program are :

- DR DOS will be developed to meet the needs of selected target market segments.
- The development of proposed new product features and functionality will concentrate on a limited number of focal features.
- These focal features will relate to key market segments and should create a technical lead over competition.
- Product feature development should exploit any strategic alliance.

00449740

Product Marketing Strategy and Market Analysis

**DEVELOPMENTAL
PARAMETERS**

The DR DOS Product Development Programme should seek to exploit the skill, dedication and experience of the GPOS Business Unit / European Development Centre.

The GPOS Business Unit is charged with the implementation of the long term strategic development as well as the tactical development of DR DOS.

Consistent with the objectives of the Product Marketing Strategy the development programme should incorporate reference to externally sourced product functionality. This can be interpreted as either buying in technology, joint development programs or reference to academic institutions.

C 0449741

Product Marketing Document and Market Analysis

PRODUCT ROADMAP

The Product Roadmap describes both the direction and the time scales for new product development.

DR DOS 5.0 was launched in June 1990, and has enjoyed considerable sales success, see Sales History.

This sales success has been based on a number of factors including the technical superiority of the product over its main competitor MS DOS.

In order to maintain and extend this technical advantage, the evolution and development of DR DOS must be maintained.

Market intelligence indicates that Microsoft will launch their competing product MS DOS 5.0 within the first six months of 1991.

As such the Product Roadmap for DR DOS calls for the launch of a MS DOS 5.0 parity product, Code Name Buxton.

The Buxton product should be available for customer shipment immediately following the release of MS DOS 5.0.

At the same time the DR DOS Product Roadmap requires a major new product release (Code Name Panther) to be available for customer shipment by Q4 FY1991.

Whereas Buxton should offer a parity feature set to MS DOS 5.0, Panther should re-establish the technical lead over MS DOS.

June 1990	September 1990	December 1990	March 1991	June 1991	September 1991
			Buxton	Panther Beta	Panther
DR DOS 5.0			MS DOS 5.0		

C0449742

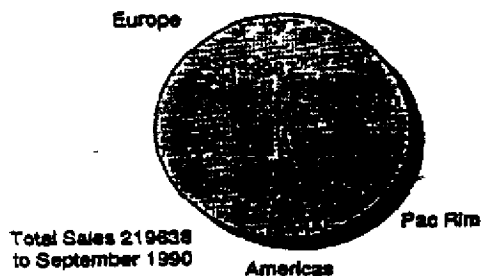
Product Marketing Strategy and Market Analysis

SALES HISTORY

Total Worldwide licence sales of DR DOS 5.0, including upgrades from DR DOS 3.41, are estimated at 2 455 289 licences to September 1990.

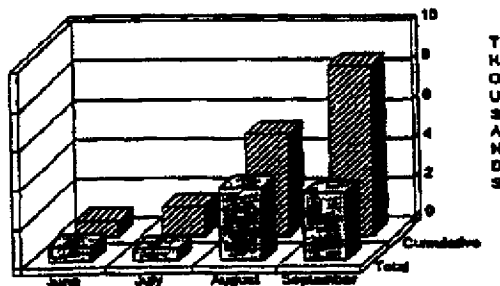
	No of Licences	No of Customers	Revenue \$ excluding Packaging
Total Including Upgrades	2,455,289	101	
New OEM Agreements	219,638	27	3,132,785
Retail Sales	8,652	11	850,624

Worldwide OEM SALES DR DOS 5.0 - Sept 90
New DR DOS 5.0 Contracts Only - to Sept



It is still relatively early days for the Retail Strategy to be evaluated, however Retail Sales for DR DOS 5.0 to September 1990 have generated approximately \$ 1 million of revenue

Worldwide Retail Sales DR DOS 5.0
June - September 1990



00949743

Product Marketing Strategy and Market Analysis

MARKET SHARE ESTIMATES

Based on an installed base of 44 million DOS based PCs and an installed base of 750,000 DR DOS shipped licences, the best estimate of market share is 1.7%. Geographically this figure varies considerably, up to 15 - 20 % in West Germany.

- Product Marketing Objective is to capture a market share of 3% of the installed base in 1991
- Product Marketing Objective 1991-94 is to capture a total of 18% of the DOS operating system market. By 1994 this would equate to an installed base in 1994 of 14 million.

	1991	1992	1993	1994
Installed Base Market Share	3%	6.7%	12.6%	18.3%
k units	1,800	3,825	6,675	6,325
% of TAM Shipment	11.2%	22.2%	38.5%	36.8%
\$million	25.2	53.53	93.45	88.70

Revenue based on \$14 average unit price . see Sales History page 3.
TAM = Total Addressable Market

This compares to a FY91 Plan Total Revenue of \$27.1 million or 1935 k units.

00449744

Product Marketing Strategy and Market Analysis

COMPETITION

The following represents an understanding, based on published articles, of the Microsoft sales and marketing plans for MS DOS 5.0.

MS DOS 5.0 is essentially three different products :

- a complete Operating System for the hardware OEMs
- a non bootable upgrade for the installed user base to be sold as a retail product
- a silicon ROM variant for the Laptop manufacturers.

Current market intelligence suggest that only the Upgrade product will be sold through the retail channel.

Both the ROM variant and the full blown operating system will only be sold bundled with hardware.

Microsofts original plan called for all three products to be shipped in October 1990.

The Retail Upgrade Product availability has now been postponed to the first half of 1991.

Shipping dates for the OEM variants are not known, but early 1991 is probably a good guess.

This delay by Microsoft can be interpreted to mean that the development of MS DOS 5.0 has been much more difficult than Microsoft originally believed.

The Retail Upgrade is believed to be \$ 79.

Fuller details of the probable feature set of MS DOS 5.0 are given in Appendix One.

C 0 4 4 9 7 4 5

Digital Research - Company Confidential

Page Eight

MS-CCP-MDL 5010628

MS-CCPMDL 000005010628

Product Marketing Strategy and Market Analysis

MARKET OVERVIEW

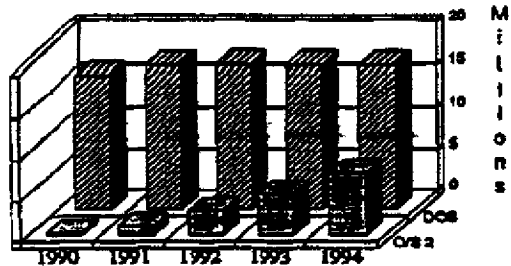
The overall growth of PC shipments remains relatively static over the next four years. However, the Total Addressable Market of DOS based machines is maturing and by 1994 will start to decline. (see Total Addressable Market)

	1991	1992	1993	1994
New Shipments	28,192 k	31,386 k	35,836 k	40007 k
Year on Year	+13%	+11%	+12%	+12%

Source : Dataquest October 1990

Worldwide Trends Operating Systems

Source : Dataquest October 1990



OPERATING SYSTEMS

According to Dataquest DOS sales will rise to 17.3 million by 1992. Thereafter sales will remain static through to 1994. During this time Windows is forecasted to penetrate the DOS market so that by 1994 Windows sales will be approximately 70% of DOS sales. At the same time OS/2 sales will increase from a lacklustre 150,000 in 1989 to 7.6 million in 1994.

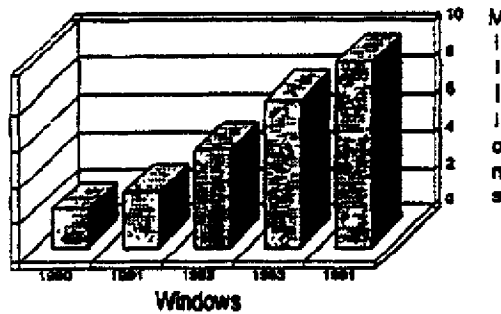
C0449746

Product Marketing Strategy and Market Analysis

Dataquest predicts that the absolute market for DOS benefits from the emergence of Windows 3.0, and as a consequence DOS will continue to dominate.

Worldwide Shipments Microsoft Windows

Source : Dataquest October 1990



The most significant trend in PC shipments is the change in packaging, the so called form factor. This area is explored in greater detail under the LITE Market Segment.

Despite the steady growth predicted in PC unit shipments over the next four years, the average unit value in real terms is forecasted to fall.

This will lead to pressure on hardware margins, the falling out of smaller players and the general need to add value to maintain profits and product differentiation.

Individual software applications offered from individual vendors are increasingly overlapping, i.e. Lotus has Spreadsheets, Graphics packages and WP. (Lotus recently acquired SAMNA)

As the major players become entrenched in an incestuous battle, they will look for additional (possibly externally sourced) product offerings to improve their U.S.P.

08449747

Product Marketing Strategy and Market Analysis

The trend in the Software Markets suggests a slowing down in the rate of market growth, which is not compensated by the transition to new Operating Systems.

Software houses are beginning to look at developing market areas such as Non Desktop and multimedia solutions.

Pressure on reseller margins has lead to traditional box shifting distributors, moving progressively into the area of Value Added Resellers, predominantly in the networking and multi user arena (Unix)

The average size of distributors has grown and in Europe many have taken on cross frontier / pan european activities.

At the same time, previous loyalty to one major supplier in each product area has disappeared.

This is particularly apparent in the networking area, where resellers will increasingly carry competitive lines.

Finally many US distributors are now entering the European market, initially through joint venture agreements.

World Wide Projections suggest that the end user profile over the next couple of years will remain relatively static.

In 1993 approximately half of all PCs will be in the business arena, the Government/Military will account for 6%, education 14% (a slight growth) and Home/hobby 30% (a slight fall back).

C0449748

Product Marketing Strategy and Market Analysis

TOTAL ADDRESSABLE MARKET

The Total Addressable Market as a proportion of the Total Shipments or Total Installed Base is a function of the penetration of non DOS based applications i.e. Unix, OS/2, Proprietary etc.

	1991	1992	1993	1994
New Shipments of DOS Based PCs	16,060 k	17,254 k	17,312 k	17,226 k
Year / Year		+7.4%	+0.3%	-0.5%
% of all Shipments	64.5 %	61.2 %	48.9 %	43.0 %
Installed Base of DOS based PCs	49,830 k	55,528 k	62,535 k	71,123 k

Source : Dataquest October 1990

C 0949749

Product Marketing Strategy and Market Analysis

Generic SWOT Analysis

	PRODUCT	COMPANY
Strengths	Competitively Priced	Well Respected
	Responsive to Market Demands	Established
	Additional Functionality	Financially Sound
	Technically Advanced	European Development
	ROMable	
Weaknesses	Not the Recognized Standard	Limited Development Resources
	Low End User Penetration	Limited Marketing Resources
	Accusations of Incompatibility	European Development
	No Windows Offerings	Small Size
Opportunities	Strategic Partnerships	Strategic Partnerships
	Software Bundles	Like Market Growth
	Maintain technical Lead	Retail Distribution
	Windows Clone	Strategic Market Development
	Win Major OEM Account	
	Win Major Corporate Account	
Threats	Major Bugs Emerge	Maturing Market
	OS/2 takes off	Cash Flow
	MS DOS 5.0 is a showstopper	Litigation
	MS Bundle Windows with MS DOS	World recession

C0449750

Product Marketing Document and Market Analysis

**MARKET SEGMENTATION
DEFINITION**

The definition of Target Market Segments is based on the following :

- Quantified Market Segment Opportunity.
- Developmental/Technical Capability.
- Potential for Digital Research to add significant end user benefit.
- Areas of Competitor Weakness.
- Areas for market leverage.

On the basis of the above the following market segments can be defined :

- Departmental - Desktop PCs using DOS applications which are interfaced to a network of some description whether acting as a " Server " or as a " Requester/Client "
- Corporate Desktop - 80586, 80486, 80386 and 80386sx and 80286 based PCs using DOS applications in stand alone mode.
- Low End Desktop - 8088/86 based PCs using DOS applications in stand alone mode.
- Lite - Portable PCs (Laptop, Handheld and Note Book) using DOS based applications performing a range of General Purpose applications. Personal Word Processors (PWP's) are also included in this segment.
- Special - DOS based equipment performing dedicated functions whether in the Industrial or in the Information Technology arena.

00449751

**MARKET SEGMENT
QUANTIFICATION**

Relative Segment importance of the various market segments varies considerably over time.

PC Shipments to Target Markets

Source : Dataquest 1990

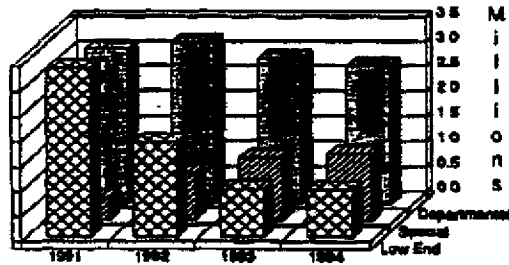


Market Segments

Not only is there the unprecedented trend towards the Lite market segments, but also the importance and characteristics of the other segments change, in some cases, dramatically

PC Shipments to Market Segments

Source : Dataquest 1990



Market Segment

C0449752

Product Marketing Strategy and Market Analysis

Departmental Market Segment The Departmental Market segment has two components - the shared processor multi user and the LAN based multi user.

LAN server shipments are predicted to grow between 1990 and 1991 and thereafter to decline as the installed base of servers is growing faster than the number of requesters being networked.

Whilst OS/2 and LAN Manager will eat away at Novells market share, the Red Giant is still predicted to hold a 50% market share in 1994.

Whilst growth of the Client / Requester PC Shipments is consistent with that forecasted for LAN Servers, the most significant opportunity presented in this market is the increasing networking amongst the installed base of 286 and 386 based machines.

Dataquest forecast that by 1994 54% of all installed PCs will be networked. This contrasts to a current 15 - 20 % penetration of the installed base. This growth will only come through networking currently stand alone machines.

A subset of the Client /Requester market is the diskless workstation. According to IDC approximately 200, 000 diskless PCs will be shipped in 1990. This will rise to 450, 000 in 1992 and to 1 million by 1994.

The second subset of the Departmental Market is the DOS based multi user systems which are addressed by Concurrent DOS and Stellar.

Finally within the corporate market a strengthening of the trend towards distributed processing will impact both on the choice of hardware and on the choice of operating system.

C0449753

Product Marketing Strategy and Market Analysis

**DR DOS 5.0 - SWOT
ANALYSIS - Departmental
Market Segment**

Strengths	Weaknesses
MemoryMax	Network Areas
ROMability	Network Redirection
On Line Help	Network O/S Commands
Security	Incompatibility to LANs/ade

Threats

OS/2 2.0 and LAN Manager penetrate the market far quicker than expected.

Microsoft continues to aggressively market a viable Networking system.

Networking companies develop a smaller Network shell

Opportunities

Strategic/Technical Alliance with a major networking house.

Positioning of DR DOS as an enabling technology for optimising LANs and Distributed Processing for both new shipments and the installed base.

Positioning of DR DOS as the logical OS upgrade route for 286 standalones becoming networked.

Positioning of DR DOS as OS of choice for X Windows server

MS DOS 5.0 offers restricted backward compatibility to MS NET.

Distribution of DR DOS via Network Distributors i.e. LanPack

00449754

Product Marketing Strategy and Market Analysis

Corporate Desktop Segment The high end is characterised by the explosive growth of the 80386 (xx).

The stand alone desk top power user is the target market for Windows 3.0 applications and DOS extended applications.

Dataquest forecasts suggest a 70 - 80 % penetration by Windows 3.0 of the High End market over the next three years.

CO449755

Digital Research - Company Confidential

Page Eighteen

MS-CCP-MDL 5010638

MS-CCPMDL 000005010638

Product Marketing Strategy and Market Analysis

DR DOS 5.0 SWOT ANALYSIS
- Corporate Desktop Segment

Strengths	Weaknesses
MemoryMAX	File Performance
Disk Caching	Multi tasking
Password security	Windows 3
Command Line Recall	Support for 2 88Mb FDD
Editor	Support for > 2 HDD
Support for Large Disk	

Threats

Microsoft bundle Windows 3 with DOS 5.0.

Microsoft bundle run time Windows 3 with DOS 5.0

OS/2 2.0 penetrate this market far quicker than expected.

Microsoft retail strategy is far more aggressive and supported than expected

Microsoft offer TPA on 286 machines

Opportunities

Offer product differentiation plus parity features as a viable alternative to MS DOS plus W 3

Optimize the performance of the 386 and 286 processor.

Optimize DR DOS as the enabling DOS for Windows 3

Digital Research offer an easy to use efficient OS bundled multitasker

Strategic partnership with major database of spreadsheet software vendor

Strategic partnership with DOS extender or memory manager vendor

Aggressively market DR DOS via Retail Distribution to the installed base.

CB449756

Product Marketing Strategy and Market Analysis

LOW END Market Segment

The sales performance of the 8088/86 based PC was stronger in 1989 than expected due in part to their use in Lite and portable PCs.

Notwithstanding the above the installed base of 8086/88 machines represents an "embarrassment" to the corporate PC manager and as such an attractive upgrade market.

The stand alone Low End will be eroded by the growth of the Lite.

One report suggest that many previously office based 8086/88 will find their way into the home. This professional home user market is already being targeted by the (integrated) software vendors.

10449757

Digital Research - Company Confidential

Page Twenty

MS-CCP-MDL 5010640

MS-CCPMDL 000005010640

Product Marketing Strategy and Market Analysis

DR DOS 5.0 SWOT ANALYSIS
LOW END Market Segment

Strengths	Weaknesses
Install and set up	Memory on 286 based machines
On Line Help	Absence of Task Switcher
ViewMax	Undiskit
ROMability	Basic
Command Line Recall	File Search
Support for Large Disks	

Threats

Microsoft taskswitcher is released significantly before Digital Research's equivalent.

Microsoft taskswitcher is better than Digital Research's

Microsoft package integrated software with MS DOS 5.0

Opportunities

Retail distribution of DR DOS to extend awareness and market penetration amongst installed base.

Add value to an increasingly price sensitive market with little product differentiation.

Improve help, ease of use and file transfer for professional home market.

Digital Research bundle an integrated package with DR DOS.

Strategic partnership with Memory Manager vendor, and leapfrog functionality.

Exploit Third World/East Bloc markets

C 8 4 4 9 7 5 8

Product Marketing Strategy and Market Analysis

LITE Market Segment

The forecasted growth of the Lite Segment is spectacular.

This means that over the next four years the Non Desktop market will grow to beyond 33 % of addressable worldwide PC shipments.

While the LITE market is primarily characterised by packaging design, its implications extend form factor issues.

The growth of the Laptop market will impact on traditional desktop sales.

The laptop is seen as a replacement as opposed to supplementary to the desk top.

00449759

Product Marketing Strategy and Market Analysis

DR DOS 5.0 SWOT ANALYSIS

- LITE Market Segment

Strength	Weakness
BatteryMAX	Size against MS DOS 3.22
Cursor	Flash File Support
ROMable	2" Disk Support
Command Line Recall	XIP support
ROMDisk Compress	
FileLNK	

Threats

MS aggressively market ROM DOS

MS capitalize on Intel 386SL chipset to the exclusion of DR

MS maintain developmental/technical lead in Flash Eprom

MS maintain developmental/technical lead in XIP technologies

Opportunities

Strategic partner in chip technology

Utilise benefits of Intel 80386SL

Pursue opportunities generated though AMD decision

Capitalise on BatteryMax technology

Strategic partner in XIP and Flash Eprom technology

Use DR DOS in ROM as a loss leader to gain First/Second Tier Account

C 0 4 4 9 7 6 B

Product Marketing Strategy and Market Analysis

SPECIAL Market Segment

This market is characterised both by its breadth and by the lack of collated market data.

It incorporates both I.T. systems, e.g. Electronic Fil-o-Fax, as well as Industrial markets where DOS is a small part of a larger system.

It is an area where DR Japan (on the I.T. side) and DR France (on the Industrial side) have greatest opportunity.

C 0449761

Digital Research - Company Confidential

Page Twenty-Four

MS-CCP-MDL 5010644

MS-CCPMDL 000005010644

Product Marketing Strategy and Market Analysis

SWOT Analysis - SPECIAL
Market Segment

Strengths	Weaknesses
ROMable	Size against V3.22
FileLINK	Developer Tools
ROM Disk	Flash ROM Support
BatteryMAX	

C0449762

Product Marketing Strategy and Market Analysis

**PRODUCT POSITIONING
STATEMENT**

DR DOS is a general purpose operating system with compatibility to DOS based software applications.

DR DOS provides the corporate M.I.S. or I.T. Manager with increased performance and functionality i.e. MemoryMAX.

DR DOS has been especially designed to provide additional easy to use and practical features for the business and professional user, both in the home, in the office and while travelling i.e. FileLINK and ViewMAX.

For the OEM DR DOS offers added value through features like BatteryMAX to the hardware with the comfort of a proven (ROMable) product at a competitive price backed up by world class technical support.

CG449763

Product Requirement Definition - Buxton

RATIONAL FOR BUXTON

Market intelligence would suggest that MS DOS 5.0 will be made available during the first six months of 1991.

The launch of MS DOS 5.0 will impact directly on the sales of DR DOS 5.0. An analysis of the probable feature set of MS DOS 5.0 suggest that many of the features of MS DOS will narrow the differentiation between MS DOS and DR DOS. Certain features, most notably the task switcher will enable Microsoft to claim a technical superiority over DR DOS.

In order to maintain and to extend the existing technical lead over Microsoft it is recommended that an interim version of DR DOS be released.

This release, code name Buxton, should achieve the following tactical objectives :

- Ensure key feature parity to MS DOS 5.0
- Extend and expand strengths of DR DOS 5.0, e.g. security.
- Overcome/pre-empt sales criticisms raised via Microsoft of DR DOS features.
- Add additional functionality to support product differentiation.

C0449764

Product Requirement Definition - Buxton

Parity Features For Buxton

Feature : Task Switching

Description : Limited published details exist on the nature of taskswitching within MS DOS 5.0. It is believed to allow up to 14 sessions. There is no information on text based "clip and paste" (Static Data Exchange).The DR DOS taskswitcher should also incorporate switching to extended or expanded memory.

User benefit : Increased performance for the user and faster task switching. By adding SDE to a taskswitcher, Buxton could leapfrog MS DOS 5.0 by offering real benefits to the use of taskswitching.

Feature : Ability to load high with Windows 3

Description : Ability to load DOS kernel, TSRs and device drivers into Upper Memory when Windows 3 is in Enhanced mode.

User Benefit : The conflict between EMM386.SYS and Windows 3 control of the processor should be overcome by the implementation of the VXD driver. This will allow DR DOS to be positioned as the optimising DOS for Windows 3.

Feature : Undelete

Description : Restores a deleted file.

User Benefit : Will give the user both the comfort and the practical value of being able to restore a file accidentally deleted.

Feature : Uninstall

Description : Allows the disk to be returned to status before DR DOS 5.0 was installed.

User Benefit : This will give the user the comfort of being able to install DR DOS on a trial basis without the risk of permanently changing to another DOS.

C0449765

Product Requirement Definition - Buxton

Parity Features For Buxton
continued

Feature : Support for 2.88Mb FDD

User Benefit : This would reduce down the material costs for the OEM, by sending out only one disk.

Feature : Quick Format / SafeFormat

User Benefit : Improves disk format times and allows user to recover data if any floppy has been accidentally formatted.

Feature : Support / ? as well as /H for accessing On Line Help

Description : DR DOS currently support /h for accessing on line help. this compares to MS DOS 5.0 which will use /? for the same function.

User Benefit : Improve user familiarity and ease of use between competing operating systems.

C0449766

Product Requirement Definition - Buxton

New Features For Product
Differentiation

Feature- Secure Disk Partitions

Description - New partition types only known to DR DOS and Stellar.

User Benefit - This will overcome the Microsoft criticism that DR DOS security is easy to break. It will prevent MS DOS from seeing password protected files and from accessing them by removing the attribute.

Feature- Power On Password.

Description - System will only boot after the user has entered the correct password. This is a facility similar to that IBM introduced in the PS/2 series of machines. It will not require the OEM to change the BIOS.

Keyboard sequence which will lock the keyboard until the correct password is entered.

Applications will continue to run with the keyboard locked.

User Benefit - This will allow the user to temporarily leave his/her machine without needing to power off, to make the machine secure.

Feature - Prevent disk maintenance utilities from circumnavigating password protection.

User Benefit - Again this will overcome an anticipated criticism.

0449767

Product Marketing Strategy - Buxton

Feature - Provide a user based security system as opposed to a file based system.

User Benefit - This will allow different users to utilise one machine, but with restricted file access. Files and Directories can be individually restricted at both world and group level.

As networks proliferate the need to protect sensitive of confidential information grows. The emergence of the diskless PC, is just one trend in this direction. While networking O/Ss offer server security, there is an equal need for security of the local disk.

Feature - Dynamic File Compression/Decompression

Description - Provide on the fly decompression when a particular file is needed plus the ability to Compress files that have not been used form a given period of time. The ability to force a decompression and show which files have been compressed should also be included, as well percentage disk saving.

User Benefit - Typical saving enjoyed by end user can be as high as 10 Mbyte on a 40Mbyte hard disk. File compression is real benefit to the user, especially when compared to the alternative of buying a new hard disk.

Feature :Senior Utilities

Description :Generally improve user interface on all utilities especially unique DR DOS ones like Password and Filef.INK.

Feature - Context Sensitive Help

Description - In so far as if the F1 key is hit then the appropriate help screen is evoked, as opposed to a help menu.

User Benefit - Improve th cease of use for both the novice and advanced user.

C 0 9 4 9 7 6 8

Product Marketing Document and Market Analysis

RATIONAL FOR PANTHER The foundation for the success of DR DOS 5.0, has been its technical advantage over MS DOS.

To maintain this advantage DR DOS needs to evolve into an operating system offering well defined end user, reseller and OEM benefits. These benefits cannot be valued either in isolation or solely as USPs (Unique Selling Points) against the competition. To be of relevance the new and additional features and functionality of DR DOS need to be defined in terms of satisfying the needs of defined market segments.

While Buxton can be termed a tactical product release (the term tactical should not detract from its importance), Panther forms part of the strategic product development of DR DOS. It is a major release to maintain both the medium and longer term commercial viability of the product.

The development program for Panther is consistent with the Core Business Strategies for DR DOS.

The Priority Target Markets for future product development for DR DOS are :

- The Corporate Desktop - including both 286 and 386 based machines.
- The Lite/Portable PC Market segment

Within these segments new product functionality or feature enhancement will concentrate on the following :

- Features offering end user appeal and/or demonstrable end user benefit
- Groupings of focal features which can be branded or marketed as offering technical superiority i.e. BatteryMAX, MemoryMAX or ViewMAX

80% of development effort must focus on Priority Features. In addition it is recommended that secondary features (detailed in Appendix Two) should be considered to add further product differentiation.

00449769

Product Requirement Definition - Panther

Targeted Additional
Functionality - Corporate
Desktop Market Segment

Priority Feature - Improve ViewMAX

Description - Create a state of the art user interface which offers a serious alternative to Windows 3.0 i.e. functionality, ease of use and feel.

User Benefits - This would offer the market (both end user and trade) an alternative to Windows 3.0.

Description - Re-code the ViewMAX interface to be compatible with Windows.

User Benefits - With the growing awareness and market penetration of Windows 3.0, giving ViewMAX as similar look and feel will increase the comfort factor amongst users.

Priority Feature - Multi-tasking

Description - Multitasking shell that can multitask standard DOS programs. Features might include:

- Large TPA for each task
- Command line and graphics user shell interfaces
- Similar look and feel to low end task switcher
- Cut and paste between applications
- Sizable windows
- Graphics in windows

00449770

Product Requirement Definition - Panther

Targeted Additional
Functionality - Corporate
Desktop Market Segment,
continued

User Benefit - For the power user the ability to perform multiple tasks concurrently on a stand alone machine will become a pre requisite. A '386 which is "chugging" through a mail merge or spread sheet calculation is unproductive for the user and under utilizes the power of the processor.

Priority Feature - Installable File System (IFS) support

Description - Provide option to load OS/2 compatible HPFS, UNEX or possibly Novell Server compatible file system.

User Benefit - It would allow the user to enjoy additional file related features such as longer file names, and improved performance.

Priority Feature - Improve MemoryMAX

Description - Make even better use of memory on 386 and above machines. Goal to bring MemoryMAX up to similar functionality as Qualitas 386MAX and Quarterdeck's QEMM.

User Benefit - For a stand alone power user, RAM Cram, is an unacceptable constraint. The decrease in performance as a result of low RAM availability of the inability to run complex dtp or large databases is not acceptable. Every additional kb of RAM is welcomed and will result in increase productivity and performance.

Description - Profile Windows use of the DOS interface in an attempt to maximize Windows performance under DR DOS

User Benefit - Windows is compute intensive, and some reports suggest a decrease in overall performance. DR DOS should alleviate this and return performance greater than MS DOS, by selectively optimising the DOS kernel.

10449771

Product Requirement Definition - Panther

Targeted Additional
Functionality - Lite Market
Segment

Priority Feature - Improve BatteryMAX

Description - Identify Software means for reducing power consumption from sources other than CPU (drives, memory, screen)

Exploit hardware power management capabilities of chip manufacturers.

User Benefit - Improve power management advantages even further.

Description - Add 'BatteryWatch' style battery gauge. This would have to monitor system activity and calculate how much power each task would consume.

Provide PowerManagement centre application to allow users to specify length of timeouts, what should be shut down etc. This is more of a ROMBIOS feature ie equivalent to the ROMBIOS setup program.

User Benefit - This will give the portable executive a visible forewarning of battery low.

Priority Feature - OEM appeal features

Description - Support IC card format proposed by PCMCIA and JEIDA

User Benefit - Maintain compatibility to major market trends.

Description - Support PCMCIA spec for execution of rommed applications (XIP) on IC cards without the need to copy the application into ram.

User Benefit - Maintain compatibility to emerging standards.

00449772

Product Requirement Definition - Panther

Targeted Additional Features - Lite Market segment continued *Description* - Support a true Read/Write file system for Flash Memory. No current standard exists although Microsoft have proposed a file system however this has limitations on large Flash media.

DR DOS 5.0 offers contiguous file format in ROM. This is overwritten with current Flash Eprom technologies.

User Benefit - Maintain compatibility to emerging standards.

Description - Support 2" drive

User Benefit - Maintain compatibility to hardware trends.

Description - Flash ROM support

Utilities which allow OEM's to remotely update operating system and application code held in Flash memory.

C 0449773

Appendix One

Probable Ms Dos 5.0 Feature Set Task Switching

Limited published details exist on the nature of taskswitching within MS DOS 5.0. It is believed to allow up to 14 sessions. There is no information on text based "clip and paste" (Static Data Exchange).

On Line Help for all commands ; for both Internal and External Commands.

This could lead to a significant increase in the size of Command.COM.

File Transfer

Full details are not available, but it is possibly based on Travellers Software LapLink, however no known beta copies of MS DOS 5.0 are known to include this facility.

Improved Memory Management on '286 based machines

Published reports suggest that MS DOS 5.0 attains a greater TPA for '286 based machines by its ability to move buffers into higher memory

KeyBoard Macros

The ability to record and replay frequently used keystrokes within command line.

Upgrade installation

Ability to install MS DOS 5.0 onto a system already running DOS.

Quick Basic Interpreter

Not required by majority of users however can be made available if required via Third Party.

C0499774

Appendix One

Probable Ms Dos 5.0 Feature Set continued

New DOS Shell with Data Manager

Believed to be fast and offering configurable menus.

New Full screen editor

Possibly mouse driven.

New Version of MS NET redirector

The MS DOS 5.0 kernel file structure is based on the DOS 4.0 file structure. This would necessitate network vendors reshipping a new version of MS NET. A new Redir.Exe would ensure compatibility to existing network redirectors.

Set Version

Allows a user to specify the MS DOS version to be returned on a per application basis.

SmartDrive (Disk Caching).

Smartdrive is not a write-thru disk cache. Write-thru disk caching increases security but at the cost of performance. Smartdrive is also a multitracking disk cache, and as such is more effective on large files which cross disk tracks.

Support for more than 2 HDD

Support for 2Gb disk support

Few machines, except dedicated servers require 2Gb disks

MS DOS Kernel

Is about 58k, i.e. similar to MS DOS 3.3. This will be advantageous to ROM based systems.

Undelete

Restores a deleted file.

C 0 4 4 9 7 7 5

Appendix Two

Targeted Additional Functionality - Secondary Importance

The following features and functionality should be evaluated by Engineering. They should be included only on a "nice to have" basis, and while they could add to the product differentiation of Panther, they should not detract or impact on the development time scales for the Priority features of Panther.

Corporate Desktop Market Segment

Feature - 386 optimized kernel (multi kernel)

Description - Performance improvement in the system by replacing code with 386 specific code.

User Benefit - This will improve the system performance and productivity for 386 power users.

Feature - Disk Cache Enhancements

Description - Support Write caching and multi track caching.

User Benefit - This will improve disk access performance and overcome a foreseeable MS DOS 5.0 competitive advantage as well as providing real user benefits.

Feature - Disk Optimiser

Description - Reorganises the fragmented hard disk to improve contiguity of files so that directories are stores together.

User Benefit - Will generally improve file access times on fragmented disks.

C0449776

Appendix Two

Feature - Print Spooler/Postscript printer support

Description - Provide a true background print spooler that intercepts output from DOS applications and stores it on disk for output. Convert simple ASCII text output into Postscript.

User Benefit - User benefit because applications will return from print jobs significantly quicker.

Postscript printer support will allow the output from Editor and other ASCII files to be printed on a Postscript printer.

Lite / Portable PC Market Segment

Feature - Documentation on disk

Description - A hypertext type mini-user guide is envisaged with the possibility for users to add their own notes.

User Benefit - This would allow the user easier access to user guide information, without reference to a more extensive hard copy hand book.

Feature - Integrated Application

Description - This could include a Spreadsheet/Word Processing/Database package, possibly sourced via a third party vendor or a Personal information manager style application providing diary, calendar, scheduler, To do list, Business card index etc

User Benefit - For the lite market, an integrated (bundled) package would mean that the user would be able to "plug and go"

Feature - Resume

Description - Provide support for a RESUME mode where the complete system state is saved.

User Benefit - The user can then restart his machine with the application as opposed to the C prompt.

00449777

Appendix Two

Feature - Enhanced Filelink

*Description - Improve user interface - menu driven /
integrated with ViewMAX*

Description - Support 3 wire installation similar to Laplink

*Description - Support LAN like connectivity over RS232
serial cable*

User Benefit - Make FileLink easier to use.

CD449779

Digital Research (UK) Ltd., Oxford House, Oxford Street, Newbury, Berkshire RG13 11B United Kingdom
Tel. 0635 35304 Fax 0635 35834

18449779

MS-CCP-MDL 5010662

MS-CCPMDL 00005010662