

08/17/90

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August 17, 1990

Mr. Jeff Scharb
Vice President, Applications and Technical Support
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1200 Wilson Drive
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Dear Jeff,

I have spent some time this week thinking about our DR1 DOS conversation. I am aware of your goal to have the lowest priced, fully featured machine in the marketplace. However when you are thinking of cost, there is more to consider than just the cost of goods. I feel that I have an obligation as your OEM Account Manager to pass on any information that will help you make a long term, money saving decision.

I also gathered some information about DR1 from the multitude of resources I have at Microsoft, and found some things that you may want to consider in making your final decision. I have been communicating with a source in Germany, and confidentially, he informs me that DR1 DOS is losing market acceptance. Their main distributor in Germany will cease distribution of their product when MS DOS 5.0 becomes available. One point of contention has been the relationship. If a distributor with a low price image dumps the product, I have to assume that sends a message to the marketplace.

Another thought occurred to me, and that was the cost of supporting two DOS operating systems, not to mention the Amiga environment. What would that additional support cost you in terms of ramp up time, training, engineering mindshare, head count, data sheets etc. I think that if we take the long term view, it will cost you less to stick with the industry standard. Why expend resources trying to sell and justify a nonstandard DOS when you could be seeing a higher payoff from your efforts in marketing the hardware?

From a technical perspective, it is my understanding from an article in last week's PC WEEK that DR1 DOS takes 13K more space on 8085/86 machines than DOS 3.3 and 3K more than DOS 4.01. MS DOS 5.0, on the other hand, is 6K smaller than DOS 4.01. After a cursory review of DR1's DOS product, we have not found any outright bugs, but we have uncovered architectural inadequacies which users will find irritating. The things described below were literally uncovered during a single day of evaluation. I am quite sure we could find more if we dug deeper. As it is, we barely scratched the surface and found some serious problems with major environments. For example:

Windows Problems

There is no way to run DR High and Run Win 3 at the same time. To run high, DR requires you use their emm386 or their Hidos. DR's emm386 is used on Intel 386 based computers and it maps upper memory blocks into the Dos arena. This will cause Win 3 to get very upset. It will hang. DR states in their manual that in order to run Win 3, you will need to remove their emm386 from the

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system. This could be very painful as it forces you to reboot. In order to run windows. This means that windows users can't get the benefit of a Dos loaded high using DR-Dos. Using their XMS driver hidos.sys, causes windows to issue an unrecognized himem driver message and terminate. Dos critical section handling is broken. Dos has a very sensitive mechanism for signaling when it enters and exits a critical section. Windows uses its knowledge of that critical section behaviour to keep Dos from doing blocking I/O. DR fails to implement this properly and causes windows trouble. This behaviour will be seen in a Dos VM running a program that calls Dos function 3fh, ReadChar from Console. In this scenario the user will experience what they believe is a system hang. Even though they are not actually hung, it will be tricky for them to figure out how to get out of the situation and they will likely reboot.

Let me paint a scenario for you. Run any communications app in windows. Now start a VM and run the Macro Assembler. What the user sees is the assembler start up banner and nothing else in the VM Window. Further, since the VM hang is now blocking windows apps from doing anything, all the windows apps freeze up too. The result in this case is loss of data coming in through the communications program. I can think of a number of scenarios like this where the user will believe they are hung, reboot and lose some data as a result. It is generally not a good idea to reboot when windows is running. Lost Fat clusters and cross linked allocation chains can result. This does not give a user a very stable feeling about their system. Apps we know fall into this category are:

- Masm
- Link
- C Compiler
- Copy Con Filesys commands (many setup programs give setup instructions that use this command)
- 4Dos

Upper Memory Blocks

386 Limulator (Emm386 equivalent)
 DR's Emm386 will automatically scan for and create upper memory blocks which it automatically links these into the Dos arena chain. We know from talking to other Limulator vendors that this is a major support problem for them because many apps get upset if they find memory above the 640K line. Most notable in this class of apps is Windows 386 v2.11 and Win3 Enhanced and Standard modes

Misc Problems caused by Upper Memory Block implementation

The automatic linking of UMBs into the Dos arena chain will cause massive headaches. We know from talking to Qualitas and Quarterdeck that there are many applications which hang if the arena chain goes above the 640K limit. If DR fails to load high, the HMA (the memory between 1MB and 1MB+64K) is not deallocated. Thus no other app can use it. This could be a problem for Lanman and Novell environments set up to use the HMA.

- Bug - If you load the hidos driver, DR will try to move high even if you specify Hidos = off. This could be very annoying if the user wants to load say Novell into the HMA.
- Bug - On machines with 512K system memory and extended memory, the HMA exists and you might think you could load DR high but it will refuse to do so.
- Bug - DR is not friendly to other himem drivers. For example, the himem driver shipped with windows. DR will refuse to load high under this XMS driver.

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Password Protection

This feature is totally vacuous. It simply marks the file as hidden. Running MS-Dos or OS/2 to look at one of these files completely bypasses any security. Further, any shell program like PC-Shell from Central Point or Norton shell will ignore the hidden attribute and allow the user to see and open these files. Not even a trivial attempt is made to try to make the files really secure, even from within the DR environment.

I pass all this on to you as information to help you in your decision making process. I will be giving you a call Monday afternoon to talk about this issue and some of the follow up items on that list you gave me.

Sincerely,



Deborah K. Flynn
OEM Account Manager

CC: Ted Mannum
Richard Fede



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