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**I N T E R O F F I C E   M E M O R A N D U M**

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**Subject:** TURBO CHANNEL

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One of the very clever things Digital did in its early years was to put an external bus on its computers which could be used to hook the computer to a wide range of external pieces of equipment and communication devices. Hundreds or thousands of other people made modules to go with these computers.

The genius in this concept was the admission that we did not know everything and we did not know what people would want to hook into it, we just made it possible for anyone to put almost anything on our computers.

The other computer companies figured they were smart enough to know everything their computer would be used for and left the facility only to do those things. The result is we walked off with much of the market.

When we made our PRO personal computer in the early 80's, our engineering had become very "sophisticated", and they knew exactly what would be hooked up to the PC and built into it facilities to do this but nothing else.

IBM on the other hand made an external bus system, with all the traditions of Digital, which allowed anything to be hooked up and hundreds of thousands of modules were designed by other people to be used with the IBM PC. The result, of course, was the Digital computer never got very far, and the IBM PC overwhelmed the world.

The traditionalists at Digital are still looking for that perfect

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bus that will do today what we did with the PDP-11, but the world is different. They will never find that perfect bus that will do everything. In fact, they change their mind every year and try a new bus.

The people at Digital who invented Turbo Channel had a much more modern and general solution to the problem. The Turbo Channel is not a bus, it is a vehicle for connecting two busses that are connected to external busses. This means with Turbo Channel we can make a computer without defining the bus. We can then make a very general machine and the customer or ourselves with an adapter to Turbo Channel, can plug in any one or several busses that are needed.

Already there are many companies making adapters to go on Turbo Channel that connect to almost everything. Today, we can plug into our Turbo Channel computer, future bus, new bus, VME, NI, CI, FDDI, plus those I have forgotten about and those I never knew about.

Turbo Channel is very fast. It has a transfer rate of one hundred megabytes or eight hundred megabits.

Turbo Channel is not a bus, but is a switch and, therefore, several messages can be carried on simultaneously. In a bus, only one message goes out at a time, but in a cross bar switch, connections are made between points and messages are run simultaneously.

This means that Turbo Channel is faster than anything proposed so far.

Digital has many thousands of Turbo Channel workstation computers in the field and the software has been running for some time. For this reason, Turbo Channel has been selected for the Modular Computer line.

KHO:pm  
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