MASSACHUSETTS INSTITUTE OF TECHNOLOGY

PROJECT MAC

March 31, 1967

Mr. Jules I. Schwartz
Director of Technology Directorate
System Development Corporation
2500 Colorado Avenue
Santa Monica, California

Dear Jules:

Dr. Larry Roberts of ARPA has requested that we make available to you information concerning the Multics system to enable you to evaluate the feasibility of adapting it to the IBM 360/67 computer. For this purpose we have enclosed a packet of material the bulk of which consists of the Multics System Programmers' Manual (MSPM). This manual represents the definitive statement of the design; a number of sections are still missing due to the processes of design review editorial review and publication but we believe the material available should be sufficient for your present evaluation. You will receive additional sections and updates at approximately weekly intervals. GE 645 hardware manuals have been omitted as irrelevant and unnecessary for your purposes; instead, essential hardware information is contained in the first chapter of the notes by Organick (see below).

Besides the MSPM there are several documents enclosed in the form of supporting material. In particular, there are the reprints of the Multics papers given at the 1965 FJCC as well as the paper by Dennis and Glaser giving the philosophy of segmentation used in the Multics system. The doctoral thesis by Jerry Saltzer (TR-30) is the background document explaining multiplexing in the Multics system. The two drafts by Organick, as their title explains, are aimed at motivating the fundamental mechanisms of the system for the sophisticated user, namely, the subsystem designer. Finally, there is a manual as well as several supplements describing the EPL language, (a proper subset of PL/I), which has been used to implement the Multics system. It is not felt that it is necessary to read this manual in order to understand the design of the system; nevertheless, it is included for completeness.

Of course, some modification in the Multics design will be required in order to adapt it to the model 67 since the present design is largely predicated on specific features which the 645 offers. The major areas of difference are:

1. The addressing access control, at the page and segment level,

2. The manner in which interrupts are handled by multiple processors,

3. The manner in which input/output is controlled including the specific controllers attached to the various units such as drums, disks, etc.,

4. The communication discipline used in handling consoles so as to permit the computer to arbitrarily interrupt a console.

These differences can be reconciled by either hardware or software modifications.

It is our preliminary intention to publish the MSPM "as is" as soon as we are confident that the design is reasonably stable and complete. We are of course aware that it is only a design manual but it will be quite some time before a careful tutorial document can be prepared. Under the circumstances we feel that early publication of the design may be desirable. We would appreciate any comments which you may have concerning these matters.

We hope that the enclosed material is sufficient for your purpose. We are sorry if it swamps you but we haven't had time to be brief! If there is any further information which you desire please let us know and we will be glad to help you to whatever extent we can.

Sincerely,

F. J. Corbató and
E. L. Glaser

FJC/csa

CC: Dr. Lawrence G. Roberts

P.S. At the last moment we find that Chapter II by Organick is not yet available in reproduced form. Rather than delay the shipment of the rest of the material we will mail it to you in a few days.