MULTICS TECHNICAL BULLETIN MTB-048

TO: Distribution

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SUBJECT: Change to Configuration Cards

Deficiencies in Current Configuration Data

In the current configuration data, peripherals are defined and described by the use of a PRPH card. This card contains fields which define a peripheral device name and its IOM and channel numbers. It also contains one additional parameter which can be used for additional required information about a device (e.g. print train image number).

In the future Multics will be expected to be capable of supporting different models of a peripheral device. Some of these are more or less compatible with each other, others are not. Therefore, more information about each peripheral device is needed than can be supplied in a single parameter on the currently used PRPH card.

Soon, most peripherals will be driven through Micro-Programmed Controllers (MPC). MPC's allow the multiplexing of several semi-independent logical channels over one or two physical links between IOM and MPC. Printers, punches, and readers are driven through a special Unit Record MPC (URMPC). Provisions are needed in the configuration data to allow determination of which logical channels have a physical link to an MPC and which physical links share MPC's. T&D tests for URMPC-driven peripherals will include replacing a portion of the URMPC firmware with special T&D firmware. It will be necessary to know what other peripheral devices share the same URMPC so that they can be disabled while testing is being performed. It will also be necessary to know which IOM chanels connect to a MPC for the purposes of firmware loading and running Integrated Test Routines (ITR's) on an MPC.

Change to PRPH Card Format

The PRPH card must be changed to allow additional data to be supplied about a device. Since different devices require different amounts of additional data, the current format of describing more than one device on a PRPH card is unacceptable. The new format would appear as follows:

```
PRPH  device  IOM#  channel#  model#  info
```

where:

device	is a device name.
IOM#	is the IOM through which the device is driven.
channel#	is the IOM channel through which the device is driven.
model#	is the model number of the device (e.g. 202 or 300 for a printer).
info	is one or more parameters of additional information needed to describe a device.

Some of the devices which would be described this way and the additional data which would appear on the PRPH card for the device is shown below:

device	info
PRTn	train#
RDRn	
PUNn	
tape	nchan f9 n9 f7 n7 nsys max

where:

train#	is the print train image number.
nchan	is the number of channels to be used.
f9	is the first 9 track tape handler number.
n9	is the number of 9 track tape handlers.
f7	is the first 7 track tape handler number.
n7	is the number of 7 track tape handlers.
nsys	is the number of tape handlers reserved for system use.
max	is the maximum number of tape handlers a process may have attached at any one time.

MPC Card

A new MPC card will be used in the configuration deck to associate channel numbers with physical links to MPC's and with MPC's. The format of this new card is as shown:

```
MPC  IOM#  channel#  nchan  IOM#  channel#  nchan
```

On this card, the IOM number, the base channel number and number of channels for each physical link to the MPC is given. There should be a separate MPC card for each MPC configured into the system.

Example

The following is a fragment from a typical current configuration deck:

```
PRPH  A  TAPE  22  2
TAPE  1  2  1  6  0  0
PRPH  A  PRTA  15  1  PRTB  14  1
PRPH  A  RDRA  16  0  PUNA  17  0
```

In the new format, this fragment would appear as follows:

```
PRPH  TAPE  A  22  500.  2  1  6  0  0  1  2
PRPH  PRTA  A  15  300.  1
PRPH  PRTB  A  14  300.  1
PRPH  PUNA  A  17  100.
PRPH  RDRA  A  16  200.
MPC  A  22  1  A  23  1
```

Changes needed to BOS

The "get_periph" subroutine in BOS will be modified to only search for one device per card. All callers of the subroutine will have to be modified slightly.

Changes needed to Multics

The "find_peripheral" primitive will be modified to search for one device per card. The IOM number and channel number will be returned to the caller along with the first info parameter. No changes should be needed to the callers of "find_peripheral". A new primitive, called "find_periph" will be written to return a pointer to a PRPH card so that future procedures can gain access to all the information found on a PRPH card.

Effecting the change

As soon as possible, the configuration deck should be modified to contain both the new format and the old format PRPH cards. They should not interface with each other. When both the Multics and BOS software which supports the new PRPH card format is installed, the old format PRPH cards can be removed.