TO: Distribution

FROM: M. L. Goudy

DATE: 30 November 1973

SUBJECT: BOS CONFIGURATION DECK

This MOSN applies to Model 6180 processor for the Multics system: It supercedes Revision 0 of MOSN-4.3, MOSN-4.3.1, and Temporary MOSN's 99.2 and 99.3 .

I. PURPOSE

The purpose of this MOSN is to give the operator enough information to prepare his own CONFIG deck.

II. INTRODUCTION

This document describes cards in the BOS CONFIG (configuration) deck. Information in the BOS CONFIG deck corresponds to the switch settings and operational readiness of hardware, peripheral devices, and some software data bases. This information is passed on to Multics and is considered by the Multics system software to be the configuration within which the system has to operate. BOS also makes use of the cards in the CONFIG deck.

Each card description in this document is preceded by a general format illustration. In these general illustrations, the fields whose values are shown in capital letters depict constant (literal) values. The fields whose values are shown in small letters depict variable fields. (For example, " CPU tag port": CPU is a literal value always present and tag and port are variables replaced by numbers or letters when the card is punched).

The examples at the end of each description usually reflect an operating environment of two processors and up to 384K of memory. The CONFIG cards do not vary in form from site to site but some of the arguments specified on these cards vary to conform to the equipment configuration that is particular to a site.

III. GENERAL DESCRIPTION OF CONFIG CARDS

All cards in the CONFIG deck contain free-formatted, individual card fields separated by blank characters.

Remarks may be punched on cards by punching an asterisk followed by the remark. Remarks on a card follow the last field which would normally appear on the card.

Numbers on BOS CONFIG cards are usually octal. Decimal numbers are represented by punching a decimal point immediately after the number (e.g., 10.).

In some card fields, numbers 1 through 8 may be represented by punching the letters A through H, respectively. For example, the number representing one of the CPU's is a "2" on the processor panel but is punched as "B" on the CONFIG card which describes that CPU.

IV. CARDS THAT DESCRIBE MAJOR MODULES OF HARDWARE

The following cards describe configuration of major modules of hardware.

CPU
MEM
IOM
D355
BULK

CPU tag port

Identifies a processor in the Multics system configuration.

tag — is a letter (A through H) corresponding to the processor number set in the processor configuration switches.

port — is a number (0 through 7) which corresponds to the memory port to which the processor is connected. If more than one processor is used, the first CPU card must be for the bootload processor.

Example (Site 1)

```
CPU  A  6   *PROCESSOR A  (BOOTLOAD PROCESSOR)
CPU  B  7   *PROCESSOR B
```

Example (Site 2)

```
CPU  D  3
```

MEM port size state

Defines the system controllers which are part of the Multics system configuration. There is one "MEM" card for each system controller configured in the system. These MEM cards must be placed in the CONFIG deck in the order in which the memories are configured, the lowest memory first and the highest last.

port — is a value (A through H) which corresponds to the number of the processor port to which the memory controller is connected.

size — is the number of 1024 (2000 octal) word blocks of core storage in the controller.

state — is either "ON" or "OFF". The argument "ON" signifies that the memory is actively connected at the time Multics is bootloaded. The argument "OFF" signifies that the memory is available and while not actively connected may be brought into the Multics system configuration dynamically.

Example

```
MEM A 200 ON        *128K MEMORY
MEM B 200 ON        *128K MEMORY
MEM C 200 ON        *128K MEMORY
```

0355 tag chn int iom

Describes the DATANET-355 communications computer in the Multics system configuration.

tag — is a letter which identifies the DATANET-355 communications computer. There can be up to threeDATANET-355's configured: for example, at MIT, the current possible values of tag are A, or B, or C for DATANET-355's 0, 1, or 2 respectively.

chn — is a number which corresponds to the IOM channel to which the DATANET-355 is connected.

int — is the interrupt cell number assigned to the DATANET-355.

Note: although it is not shown on the card, there are actually two interrupt cells assigned to the DATANET-355, the second being used for emergency interrupts. The number of the second interrupt cell is always 16 (decimal) greater than the interrupt cell specified in the DATANET-355 card.

iom — is the tag of the IOM to which the DATANET-355 is connected.

Example

```
0355 A 21 0 A
```

IOM tag port int0 int1 int2 int3

Describes an Input/Output Multiplexer (IOM) as part of the Multics system configuration.

tag — is a letter which identifies the IOM.

port — is the memory port to which the IOM is connected.

int0 ... int3 — are the interrupt cells assigned to the IOM.

Example

```
IOM A 0 4 14 24 34
```

BULK frec nrec port intO

Defines the Bulk Storage device in the Multics system configuration.

frec — is the number of the first useable 1024 word record (usually 0).

nrec — is the number of 1024 word pages which may be used. Currently, at MIT, nrec is 2048. There are two-million words of storage on the bulk store at this time.

port — is the memory port to which the bulk store is attached. (For example, at MIT, this value is 2.)

intO — is the interrupt cell assigned to the bulk store. (For example, at MIT, this value is 2.)

Notes

If one wishes to use the bulk store as a paging device, (the normal way in which it is used), a PAGE card and a PART card must also be provided. (See the example provided in the descriptions of these cards.)

Example

```
BULK  0  2048.  2  2
```

V. CARDS THAT DESCRIBE PERIPHERAL CONFIGURATION

The following cards describe the configuration of peripheral devices:

PRPH
TAPE
D190
D181

PRPH tag spc1 spc2 spc3 spc4

Identifies those peripheral devices which are connected to the IOM.

tag is the tag of the IOM.

spc1 ...
spc4 represent peripheral device descriptions which specify the devices attached to the IOM. From one to four descriptions may be placed on a PRPH card. Each of these consists of three items:

<device_identification> unique identification of the device. The following device identifications have been used. These device identifications have not been registered as a system data base. The purpose of this list is to give as complete a list as possible so that programmers and operators specifying PRPH cards in the future will not duplicate a device description.

Device Description	Device
PRTA	printer A
PRTB	printer B
PUNA	card punch
TAP7	7-track tape drive
TAP9	9-track tape drive
IMP	Multics Imp

<channel number> channel on the IOM to which the device is connected.

<device_information> device dependent information. For example, if the device

identification field specifies a printer, the following values have meaning:

0 = Model 202
1 = Model 300 (Chain Type- MAC)
2 = Model 300 (Chain Type # 8)
3 = Model 300 (Chain Type # 2)

Examples

```
PRPH  1  PRTA  15  0  PUNA  17  300  RDRD  16  0
```

specifies devices attached to the IOM as follows:

A line printer whose unique identification is prta is attached to IOM 1 via channel 15 (octal), and it is a model 202 printer. The card punch whose unique identification is "puna" is attached to IOM 1 via channel 17 (octal) and can punch 300 information only. The card reader whose unique identification is "rdrd" is attached to IOM 1 via channel 16 and no device information is specified.

An example of current PRPH cards used in the configuration deck are:

```
PRPH  A  TAP7  12  1  TAP9  12  3  IMP  23  0
PRPH A  RDRA  16  0  PUNA  17  0
PRPH  PRTA  15  1
```

Configuration information for the IMP software is also specified on the PRPH cards. Note that the PRPH card affecting the IMP software, above, has the identifier IMP. The information field of this PRPH card is used for debugging and for specifying global parameters to the IMP software. Unless directed otherwise, the last field of this card contains a zero.

PRPH CARD FOR THE IMP

```
PRPH  iom_tag  IMPR  rchn 0  IMPW  wchn  host_no
```

This PRPH card describes the ARPA Network IMP connected to the Multics IOM through an ABSI (Asynchronous Bit Serial Interface). The parameters are as follows:

iom_tag refers to the IOM to which the IMP is connected.

rchn is the IOM channel number of the IMP read channel.

wchn is the IOM channel number of the IMP write channel.

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1 = Model 300 (Chain Type- MAC)
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Examples

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iom_tag refers to the IOM to which the IMP is connected.

rchn is the IOM channel number of the IMP read channel.

wchn is the IOM channel number of the IMP write channel.

TAPE sys_drives proc_drives device_info1 device_info2

The TAPE card along with an associated PRPH card describe the Multics tape configuration. Both these cards are required by the Multics tape package.

The format of the PRPH card is described above. The PRPH card and the TAPE card must be consistent.

sys_drives — is the number of drives reserved for system use. A drive reserved for the system is always a 9-track drive.

proc_drives — is the number of drives any one process can attach at a time.

device_info1 — is the starting drive number of 7-track tape drives to be configured.

device_info2 — is the starting drive number of 9-track tape drives to be configured.

Example

```
TAPE 1 2 0 1
```

In the example, there is one 7-track drive and it is on drive 0, and there are three 9-track drives starting at drive 1. Note that the information on the TAPE card and the PRPH card must be consistent, i.e., there cannot be four 7-track drives starting at drive 0 and three 9-track drives starting at drive 2.

With the complete information on the PRPH and TAPE cards about the number and type of drives, the tape mounting programs are able to select the correct drive.

In order to get more accurate error reporting on a per-drive basis, operations should not change the drive selection switches on the tape controller after they have been set according to the information in the TAPE card.

D190 frec nrec iom channel area areamap logical_chn chn_online

Defines the DSU-190 disks on the Multics system configuration.

frec	is the first available record on the DSU-190 disk.
nrec	is the number of available records on all the DSU-190 disks.
iom	is a tag of the IOM to which the DSU-190 disks are connected.
channel	is the IOM channel to which the DSU-190 disks are connected.
area	is the number of areas (DSU-190 disks) to be used.
areamap	is the octal value of one or more computer words which describe the logical device address of the DSU-190 disks to be used. Each 6-bit element (octal number pair) is interpreted as a disk unit and spindle number. Multics maps each number pair into a physical device address.
logical_chn	is the number of logical channels available for block multiplexing.
chn_online	is the number of logical channels to be used when the system is brought up. If not specified, it will be set equal to logical_chn.

Example

```
d190  0  88440.  A  24  6  50200040306  4  4
```

D181 frec nrec iom channel area areamap logical_chn chn_online

Defines the DSU-181 disks on the Multics system configuration.

frec	is the first available record on the DSU-181 disk.
nrec	is the number of available records on all the DSU-181 disks.
iom	is a tag of the IOM to which the DSU-181 disks are connected.
channel	is the IOM channel to which the DSU-181 disks are connected.
area	is the number of areas (DSU-181 disks) to be used.
areamap	is the octal value of one or more computer words which describe the logical device address of the DSU-181 disks to be used. Each 6-bit element (octal number pair) is interpreted as a disk unit and spindle number. Multics maps each number pair into a physical device address.
logical_chn	is the number of logical channels available for block multiplexing.
chn_online	is the number of logical channels to be used when the system is brought up. If not specified, it will be set equal to logical_chn.

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VI. CARDS WHICH DESCRIBE TERMINAL DEVICES

There are three types of cards which describe the terminals connected to the Multics system configuration. These are:

LSLA
HSLA
OPC

LSLA tag lsla_no sequence baud channels baud channels ...

Describes the low-speed-line-adapters (LSLA) used in the Multics system configuration.

tag	is a letter A through C corresponding to the tag of the DATANET-355 to which this LSLA is attached.
lsla_no	is the number of the LSLA which this card describes.
sequence	is used to allow the presence of multiple cards to describe the same LSLA.
baud	is a baud rate.
channels	is the number of channels at that baud rate.

Examples

```
LSLA  B  0  1  150. 10
LSLA  B  1  1  133.  5
LSLA  C  0  1  300.  6

LSLA  A  0  1  150.  10  133.  2  110.  2  300.  4
```

The above card is equivalent to:

```
LSLA  A  0  1  150.  10
LSLA  A  0  2  133.  2
LSLA  A  0  3  110.  2
LSLA  A  0  4  300.  4
```

HSLA tag hsla_no channo baud channels baud channels ...

Describes the high-speed-line-adapters (HSLA) used in the Multics system configuration.

tag	is a letter A through C corresponding to the tag of the DATANET-355 to which this HSLA is attached.
hsla_no	is the number of the HSLA which this card describes.
channo	is the subsequent number of the first (lowest numbered) subchannel described on this card.
baud	is a baud rate.
channels	is the number of channels at that baud rate.

Examples

```
HSLA  A  0  10. 1200.  4  300.  2
```

TTY_Channel_Naming

The tty channel names can be derived from the LSLA/HSLA number. The TTY channel names are of the form:

TTYxnn

where nn is an number formed by concatenating 00 with either the hsla__no or lsla_no parameter.. The x component of the name contains the LSLA/HSLA number and the DATANET-355 number. (Currently, up th 3 DATANET-355's may be configured to Multics).

Since a DATANET-355 may have up to six LSLA's and three HSLA's, the value for the x compoonent is::0 to 5 for the LSLA's and 6 to 8 for the HSLA's (on DATANET-355 number 0). On DATANET-355 number 1, the value for the x component is the letters A through F for the six LSLA's and G through I for the three HSLA's. For the DATANET-355 number 2, the letters J through O are used for the six LSLA's and the letters P through R for the three HSLA's.

For example, if the configuration deck consisted of the following cards:

```
LSLA   A   0   1   150.   2
LSLA   A   1   1   133.   2
HSLB   B   0   10   1200.   1
HSLA   B   1   0   1200.   2
D355   A   0   21 D355   B   4   22
```

The TTY names (contained in a special Multics data base called the lines file) would be as follows:

tty000, tty001, tty100, tty101, tty610, ttyP01, ttyP02

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where nn is an number formed by concatenating 00 with either the hsla__no or lsla_no parameter.. The x component of the name contains the LSLA/HSLA number and the DATANET-355 number. (Currently, up th 3 DATANET-355's may be configured to Multics).

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For example, if the configuration deck consisted of the following cards:

```
LSLA   A   0   1   150.   2
LSLA   A   1   1   133.   2
HSLB   B   0   10   1200.   1
HSLA   B   1   0   1200.   2
D355   A   0   21 D355   B   4   22
```

The TTY names (contained in a special Multics data base called the lines file) would be as follows:

tty000, tty001, tty100, tty101, tty610, ttyP01, ttyP02

VII. CARDS WHICH DESCRIBE SOFTWARE

The following cards describe software which is related to the configuration in which the Multics system must operate:

TTY8
SST
TCD
INT
SCHD
PART
THRS
PAGE
PRTB
SYST
CLOK
OPTY

TTY8 size

Describes the size of the terminal (teletype) buffer in the Multics system configuration.

size Is the number of 1024 word pages of the teletype buffer.

Example

```
TTY8  5
```

SST size ast1 ast2 ast3 ast4

Describes the size of the System Segment Table in the Multics system configuration.

size Is the number of 1024 word pages occupied by the System Segment Table.
ast1 Is the number of active 4K segments allowed.
ast2 Is the number of active 16K segments allowed.
ast3 Is the number of active 64K segments allowed.
ast4 Is the number of active 256K segments allowed.

Example

```
SST  32.  442.  220.  45.  0
```

TCD size apt itt dst

Describes the size of the data bases in the Multics system configuration which contain information needed by the traffic controller.

size	is the number of 1024 word pages occupied by the Traffic Controller Data Segment.
apt	is the number of entries in the Active Process Table.
itt	is the number of entries in the Inter-Process Transmission Table.
dst	is the number of entries in the Device Signal Table.

Example

```
TCD  5  75.  150.  130.
```

INT Int0 Int1 Int2 Int3 Int4 Int5

Defines the process interrupt cells in the Multics system configuration. (process interrupt cells are internal, software-generated interrupts used to control operation of Multics).

Int0 ...
Int3 are process interrupt cell assignments (2- or 3-digit octal numbers). The value of the field modulo (100 octal) is the interrupt cell number. The octal hundreths position defines the interrupt type. Values such as 230 are type 2, while values such as 22 are type 0. Type 2 interrupts execute on the POS stack and may take page faults. Type 1 interrupts are not currently defined. Type 0 interrupts execute on the PRDS and are not allowed to take page faults.

Int4 Is the system trouble interrupt cell assignment. (Currently this is 22).

Int5 Is the syserr log interrupt cell assignment.

Example

```
INT  230  231  232  233  22
```

TCD size apt itt dst

Describes the size of the data bases in the Multics system configuration which contain information needed by the traffic controller.

size	is the number of 1024 word pages occupied by the Traffic Controller Data Segment.
apt	is the number of entries in the Active Process Table.
itt	is the number of entries in the Inter-Process Transmission Table.
dst	is the number of entries in the Device Signal Table.

Example

```
TCD  5  75.  150.  130.
```

INT Int0 Int1 Int2 Int3 Int4 Int5

Defines the process interrupt cells in the Multics system configuration. (process interrupt cells are internal, software-generated interrupts used to control operation of Multics).

Int0 ...
Int3 are process interrupt cell assignments (2- or 3-digit octal numbers). The value of the field modulo (100 octal) is the interrupt cell number. The octal hundreths position defines the interrupt type. Values such as 230 are type 2, while values such as 22 are type 0. Type 2 interrupts execute on the POS stack and may take page faults. Type 1 interrupts are not currently defined. Type 0 interrupts execute on the PRDS and are not allowed to take page faults.

Int4 Is the system trouble interrupt cell assignment. (Currently this is 22).

Int5 Is the syserr log interrupt cell assignment.

Example

```
INT  230  231  232  233  22
```

frec4 Reserved.
nrec4 Reserved.
frec5 Reserved.
nrec5 Reserved.

Examples

```
PART MULT  0  0  0  24424.  0  48372.  0  0  0  0
PART SALV  0  0  24424.  512.  0  0  0  0  0
PART DUMP  0  0  0  0  0  98372.  512.  0  0
PART PAGE  0  2048.  0  0  0  0  0  0
```

These cards partition vital parts of the software in the Multics system configuration over a defined area of the bulk store and disks. The Salvager is partitioned to the DSU-190 disks to occupy the 512 records immediately above the area occupied by Multics. Similarly, the Dump is partitioned to occupy the DSU-181, 512 records immediately above the area occupied by Multics on the DSU-181. The areas of the bulk store, DSU-190, and DSU-181 specified on the "PART card" must be within the limits specified on the "BULK, D190, and D181 cards".

For example, when the bulk storage is used for a paging device the format of the "PART PAGE" card is as follows for the service machine:

```
PART PAGE  0  4000  0  0  0  0  0  0  0  0
```

Another example is intended to show the use of the PART log card. The format of this card is:

```
PART LOG  0  0  0  0  8760.  64  0  0  0  0
```

This card defines a secondary storage partition for the paged syserr_log segment. This card is optional; its absence implies that the syserr logging mechanism is disabled. Note that this partition may reside only on one device. The field LOG implies that the partition is for the syserr_log.

THRS ovfl1 ovfl2

Describes secondary storage overflow thresholds for the various devices.

ovfl1 Is the DSU-190 spill-over threshold.
ovfl2 Is the DSU-181 spill-over threshold.

Example

```
THRS 350. 100.
```

PAGE name frec nrec frec1 nrec1 ... frec5 nrec5

Describes the partition and device to be used as the paging device.

name is the name of a device to be used as a paging device. It may be "NONE" to indicate that no paging device is to be used.
frec is the first record of the device to be used as a paging device record.
nrec is the maximum number of paging device records to be used. frec1 nrec1 ... frec5 nrec5 are up to 5 optional "frec-nrec" pairs which may be specified to delimit areas of the paging device. During system initialization, these options (if given) will automatically deconfigure the specified portions of the paging device.

If one wishes to use the bulk store as a paging device, (this is the normal way in which it is is used) one must provide a PAGE card of the form:

```
PAGE BULK frec nrec
```

where frec is the number of the first 1024 word record on the paging device and nrec is the number of pages to be used.

Examples

```
PAGE BULK 0 2048.
PAGE NONE

PAGE BULK 0 4000 2400 400
```

PRTB size

This is an optional card which specifies that a wired-down buffer be created for use by the system printer or tape trace routine. Such a buffer allows I/O to the trace device (printer or tape) to be buffered thereby preventing system slowdown.

size — is the number of 1024 word blocks to be used for the buffer.

Example

```
PRTB 2
```

SYST size

This is an optional card which specifies that a wired down buffer be created for use by the system trace routine. The system trace routine is used to store various data in a circular fashion in this buffer for help in finding a system bug.

size — is the number of 1024 word blocks to be used for the buffer.

Example

```
SYST 2
```

CLOK delta zone

Defines a calendar clock in the Multics system configuration.

delta — is the time difference (number of hours earlier) from GMT (Greenwich Mean Time). The range of this field should be -12 <= DELTA <= +12.

zone — is up to four characters describing the time zone (e.g., "EDT" or "EST").

Examples

```
CLOK  5  EST
CLOK  4  EDT
```

OPTY init_dim init_chan

The OPTY card is an optional card which specifies the dim (device interface module) to be used by the initializer. Optionally, the initializer teletype channel number, the iom, and the iom_channel number may be specified also.

init_dim — is the name of the initializer dim. It can be tw_ or oc_ or another dim name less than four characters. This field must be present.

init_chan — is the channel number of the initializer tty. This parameter is needed only when tw_ is the init_dim

Examples

```
OPTY  TW_ 02
```

or

```
OPTY  OC_
```

VIII. SPECIAL CONFIG CARDS

There are three cards which do not normally appear in a CONFIG deck:

INTK
DEBG
METR

These have specilized meaning explained in the following paragraphs.

INTK boot name

The INTK card is not physically present in the CONFIG deck. It is a card image set up by BOS in the core-resident image of the CONFIG deck at bootload time.

boot	is either 0 or 77 and specifies respectively whether the system was brought up by a COLD or a WARM bootload.
name	is either MULT or SALV and specifies whether Multics or the Salvager is being run.

Example

```
INTK  77  MULT
```

METR meters -parameters-

Provides a standard mechanism for controlling the operation of specialized system meters (i.e., meters that need not be kept daily, but are useful in evaluating design changes).

meters — is the name of the group of meters for wich parameters are specified.

parameters — are any parameters appropriate to the specified group of meters.

The proper operation of Multics should not be affected by the presence or absence of any METR card.

At present, the only meters controlled by the METR cards are disk load, seek time and access time histograms kept by the OSU 190 control. The format of this METER card is:

METR disk indx prior int_st int_sze cyl_st cyl_sze acc_st acc_sze

disk — is the disk type, either: D190 or D181.

indx — is the logical number of the disk unit whose access requests are to be metered. (If this parameter is 0, requests to all disk units are metered). This parameter is not the same as the physical disk unit number on the panel on the font of the disk drive, but is an index into the list of physical disk units specified on the D190 or D181 card.

prior — controls the priority of requests to be metered. 0 = low priority only: 1 = high priority only: 2 = all priorities.

int_st — is the lower limit of the disk request interarrival time histogram to be taken (in microseconds).

int_sze — is the size of each "interval" in the interarrival time histogram (in microseconds).

cyl_stat — is the lower limit of the number-of-cylinders-crossed histogram to be taken (in units of cylinders crossed).

cyl_sze — is the size of each interval in the number-of-cylinders-crossed histogram (in units of cylinders crossed).

acc_st — Is the lower limit of the disk access time histogram to be taken (in microseconds modulo 512).

acc_sze — Is the size of each interval in the disk access time histogram (in microseconds modulo 512).

The above meters may be interrogated with the disk_performance_graphs (dpg) command.

Examples

```
METR  0181  0  1  20000. 20000.  5.  5.  20480. 10240.
```

causes histograms to be kept for all DSU 181 disk units configured for high-priority requests only. The interarrival time histogram starts at 20 milliseconds (20000 microseconds) and has intervals of size 20 milliseconds. The number of cylinders crossed histogram starts at 5 cylinders and has intervals of 5 to 9 cylinders crossed, 10-14, 15, 19 etc. The access time histogram begins at 20.48 milliseconds and has intervals10.48 milliseconds wide.

```
METR  0190  3  2  200000.  20000.  0.  10.  10240.
5120.
```

causes histograms to be kept for the third logical DSU 190 disk unit configured for all requests regardless of priority. The interarrival time histogram is the same as in the previous example. The number of cylinders crossed intervals are 10 wide and start at 0 (e.g., 0-9, 10-19, etc). The access time histogram starts at 10.24 milliseconds and has intervals 5.12 milliseconds wide.

Defaults

If no METR card is included in the CONFIG deck for a disk of a given type, the default action is to bypass the coding in the DIM that collects the metered information.

If for a given disk type, multiple METR cards appear in the CONFIG deck: the first card encountered takes precedence.

If an error is discovered while reading a METR card at initialization time, a message is printed on the Operator's Console as follows:

DSUxxx-INIT: param_name ON METR Dxxx CARD IS OUT OF RANGE. CARD IGNORED.

param_name is the name of some parameter on the METR card. This message and error has no effect on correct system operation, but the meters specified will not be collected. (Programming staff should be notified).

METR cards for disk types not configured in the operating configuration have no effect.

DEBG -LW n0 MQB n1 DAC n2

Specifies conditions and actions when known bugs are detected in the Multics system. This card is generally used by the systems programmers at the Multics development site on new and experimental versions of Multics. The contents of the DEBG card are programmer specified and change frequently.

The following are the current known options that may be used on the DEBG card:

MQB — Is a check in "quota" to crash the system if a "move_quota" bug is detected. (i.e., check to see if the total quota of a parent and entry is different after a move.)

DEAC n — Is a check in "deactivate" to call "syserr" with a control argument of n if a step is bad after a call to "lock". (This is used to cause an out_of_bounds_error invoking a call to the "online salvager".)

-LW n — Is a check in "pxss" for the "loop wait" bug. (It calls "syserr" with the number n specified as a control argument.)

CKDV did n — Is a check in "page control" for bad reads from the specified device identification (did) (It accomplishes this by storing a pattern in core before the read is issued and then checks for that pattern after the read is issued. When a misread is detected, a "fatal page read error" is signalled and syserr is called with the number specified as n as a control argument.

DBLW code — Is used to control the "store through" or "double write" option in page control. If the option is enabled, the page written to the paging device will also be written to secondary storage. This will be true only for pages which are not inferior to the directory >process_dir_dir. For the values of code shown, the following actions will occur:

code	Action
0	No double write
1	Double write of only directory pages

IX. LISTING THE CONFIG DECK

When the CONFIG deck has been read by BOS at bootload time, it may be listed by typing the BOS "CONFIG ?" command at the operator's console. When Multics is running, a privileged Multics user may list the CONFIG deck with the print_configuration_deck (pcd) The following is a typical CONFIG deck which has been listed by typing the pcd command:

```
cpu  a  7
cpu  b  6
mem  a  128.  on
mem  b  128.  on
mem  c  128.  on
clok  5  est
iom  a  0  4  14  24  34
bulk  0  4000  2  2
page  bulk  0  4000
part  page  0  4000  0  0  0  0  0  0  0  0
d190  0  88440.  a  24  6  70200040306  4
part  mult  0  0  0  87528.  0  0  0  0  0  0
part  salv  0  0  87528.  400.  0  0  0  0  0  0
part  dump  0  0  87928.  512.  0  0  0  0  0  0
tcd  6  92.  196.  154.
sst  18.  436.  200.  44.  0
d355  a  21  0  a
prph  a  tap7  12  1  tap8  12  3  lmp  23  0
prph  a  rdra  16  0  puna  17  0
prph  a  prta  15  1
tape  1  2  0  1
int  230  231  232  233  22
schd  400000  4  10  100
opty  oc_
lsla  a  0  1  133.  22.
lsla  a  1  1  150.  6  300.  5  133.  4
lsla  a  1  2  150.  1  110.  1  300.  2
lsla  a  4  1  110.  2  150.  5
ttyb  3
intk  77  mult
```

(END)

IX. LISTING THE CONFIG DECK

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bulk  0  4000  2  2
page  bulk  0  4000
part  page  0  4000  0  0  0  0  0  0  0  0
d190  0  88440.  a  24  6  70200040306  4
part  mult  0  0  0  87528.  0  0  0  0  0  0
part  salv  0  0  87528.  400.  0  0  0  0  0  0
part  dump  0  0  87928.  512.  0  0  0  0  0  0
tcd  6  92.  196.  154.
sst  18.  436.  200.  44.  0
d355  a  21  0  a
prph  a  tap7  12  1  tap8  12  3  lmp  23  0
prph  a  rdra  16  0  puna  17  0
prph  a  prta  15  1
tape  1  2  0  1
int  230  231  232  233  22
schd  400000  4  10  100
opty  oc_
lsla  a  0  1  133.  22.
lsla  a  1  1  150.  6  300.  5  133.  4
lsla  a  1  2  150.  1  110.  1  300.  2
lsla  a  4  1  110.  2  150.  5
ttyb  3
intk  77  mult
```

(END)