

Zilog

Performance Note for ZEUS 3.2

Ø3-2ØØØ-Ø1

The new segmented ZEUS 3.2 kernel provides users with greater flexibility in configuring and fine tuning their systems. In particular, the performance of systems with a large amount of disk activity can be significantly improved by increasing the size of the system buffers in the kernel.

The sysgen (M) utility is used to create a new kernel specific to the configuration of a system. Sysgen uses a file called /usr/sys/h/sysparm.h as a reference for certain information to be used in constructing the new kernel. Among other parameters, this file contains five (5) constants which determine the size of the system disk buffers. These constants are NBUF1 through NBUF5. The default settings for these constants on ZEUS 3.2 are:

```
# define NBUF1 4Ø
# define NBUF2 1
# define NBUF3 1
# define NBUF4 1
# define NBUF5 1
```

The sizes of these default buffers are set to accommodate the smallest system configuration available from Zilog. System performance may be improved on other systems by increasing the size of these buffers. The following set of constants has been found to optimize performance under most circumstances.

```
# define NBUF1 3Ø
# define NBUF2 3Ø
# define NBUF3 3Ø
# define NBUF4 3Ø
# define NBUF5 3Ø
```

It is recommended that for systems with more than 256K of memory, a new kernel should be generated which includes buffers of this size. Use of the above NBUF values with systems having 1 megabyte of memory may yield a disk performance gain up to a factor of 2.

To incorporate these values into a new kernel for your system, first install the ZEUS 3.2 software onto your system according to the installation instructions contained in

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the Note to User (03-0237-02). Next:

1. Login as zeus.
2. Make a backup copy of /zeus (in case it is needed):

```
cp /zeus /tmp/zeus.old
```

3. Change directory to /usr/sys/conf and execute sysgen:

```
cd /usr/sys/conf  
/etc/sysgen -f /tmp/zeus.new
```

The "f" option of sysgen causes the new kernel to be called "zeus.new" and to reside in the /tmp directory. This is done in the event that not enough space is available in /usr for the new kernel. When sysgen prompts "Do you wish to change any system constants? (y or n):", respond "y". This causes the file /usr/sys/h/sysparm.h to be edited with vi. Change the value of each of the buffer constants, NBUF1 through NBUF5, to 30, and exit vi. Continue through the remainder of the sysgen responses. See Section 5 of the ZEUS Administrator Manual for specific sysgen responses.

4. To install the new kernel:

```
cp /tmp/zeus.new /zeus
```

5. Bring the system into single user mode in a graceful manner by using the "down" command, or, if no users are on the system, enter the commands:

```
sync  
sync  
init 1
```

6. When the single user prompt (#1) appears, flush the system buffers:

```
sync  
sync
```

7. Boot the new kernel by pressing the RESET and START buttons on the front of the System 8000.