dice modify/Aut /

APPENDIX A

SUGGESTED LIMIT VALUES

Turn direct IGES acquisitions

I. DEC Workstations (VAXstations):

Maxjobs:	0	Fillm:	200	Bytlm:	30720
Maxacctjobs:	0	Shrfillm:	~~10~~ 0	Pbytlm:	0
Maxdetach:	0	BIOlm:	350	JTquota:	1024
Prclm:	10	DIOlm:	150	WSdef:	750
Prio:	4	ASTlm:	600	WSquo:	1200
Queprio:	0	TQElm:	20	WSextent:	8000
CPU:	(none)	Enqlm:	~~60~~ 1000	Pgflquo:	50000 *

Rich memory

Authorized Priveleges:
GRPNAM GROUP PRMMBX TMPMBX NETMBX
Default Priveleges:
GRPNAM GROUP PRMMBX TMPMBX NETMBX

II. Schlumberger Workstations:

Maxjobs:	0	Fillm:	200	Bytlm:	30720
Maxacctjobs:	0	Shrfillm:	~~10~~ 0	Pbytlm:	0
Maxdetach:	0	BIOlm:	18	JTquota:	1024
Prclm:	10	DIOlm:	18	WSdef:	750
Prio:	4	ASTlm:	600	WSquo;	1200
Queprio:	0	TQElm:	20	WSextent:	6000
CPU:	(none)	Enqlm:	~~60~~ 1000	Pgflquo:	50000 *

Authorized Priveleges:
GRPNAM GROUP PRMMBX TMPMBX NETMBX
Default Priveleges:
GRPNAM GROUP PRMMBX TMPMBX NETMBX

* Solids users may wish to set PGFLQUO to 60000-70000

1. INTRODUCTION

This document presents a procedure for the tuning of VAXes running Schlumberger CAD/CAM Bravo3 software.

This document should be viewed as a working document. As software changes occur in VMS and the Schlumberger CAD/CAM Applications, the parameter values can be expected to change.

This procedure should be performed only by qualified and authorized personnel responsible for such activities at the site.

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SCHLUMBERGER CAD/CAM ASSUMES THE USER OF THIS DOCUMENT IS FAMILIAR WITH VAX/VMS SYSTEMS MANAGEMENT PROCEDURES AND PRACTICES.

The process of tuning VAXes for optimal performance can be thought of as a constantly moving target which will never be fully attained. There is always a level of compromise involved. The axiom "You don't get something for nothing" applies most appropriately with VAX tuning. It is generally accepted that, given the workload and environment is a constantly changing entity, achieving performance gains beyond 85% efficiency will be counter-productive. In other words, greater and greater effort will be expended to achieve smaller and smaller results.

Prior to modifying the system, there are some safeguards and preliminary procedures to perform.

All changes to SYSGEN should be made in SYSSSYSTEM:MODPARAMS.DAT. This will document changes as well as safeguard against changes being lost. Schlumberger recommends using MIN_PARAMETER when adding entries to MODPARAMS.DAT except in a case where lowering a value that is too high is essential.

A. Perform an image backup of the system disk.

B. Copy the file SYS$SYSTEM:VAXVMSSYS.PAR to a different file:

```
$ COPY/READ/WRITE/LOG/CONTIG -
    SYS$SYSTEM:VAXVMSSYS.PAR -
        SYS$SYSTEM:OLDVMSSYS.PAR
```

C. Purge the system root directories.

```
$ PURGE/LOG   SYS$SYSROOT:[000000...]
```

D. The tuning process involves the following steps:

Modifying Schlumberger CAD/CAM entries in SYS$SYSTEM:MODPARAMS.DAT.

Packet and Pool Sizing - three phase procedure.

Setting UAF values and PQL values.

Sizing Page and Swapfiles.

II. MODPARAMS.DAT Modifications

A. The first step in the tuning procedure is to examine the file SYSSSYSTEM:MODPARAMS.DAT. The area which we are interested in is the section where Schlumberger CAD/CAM writes modifications. This section follows a header section of comments which summarizes various products Schlumberger CAD/CAM has installed.

B. Comment out the ADD_ values. See Figure 1.

```
!
! BRAVO3 PRODUCTS (26-JUN-1988):
!
! PRODUCT AE
! VERSION V2.000
! MINVAL GBLSECTIONS     228
! MINVAL GBLPAGES      55010
                        .
                        .
                (more Schlumberger Products)
                        .
                        .
!
! PRODUCT GFM
! VERSION V1.700
! MINVAL PROCSECTCNT 40
! MINVAL VIRTUALPAGECNT 35000
! END GFM
!
MIN_GBLSECTIONS = 295
!ADD_GBLSECTIONS = 67 <--Comment this line out.
MIN_GBLPAGES = 88519
!ADD_GBLPAGES = 33509 <--Comment this line out.
MIN_GBLPAGFIL = 32228
!ADD_GBLPAGFIL = 968 <--Comment this line out.
PROCSECTCNT = 300
                        .
                        .       Continue to comment out all ADD_  lines
                        .
! END BRAVO3 PRODUCTS.
```

Figure 1 MODPARAMS.DAT Modifications

C. Once the ADD_ lines have been commented out, the following SYSGEN parameter values need to be verified as being in SYS$SYSTEM:MODPARAMS.DAT.

	PFCDEFAULT	= 64	! Fixed Value Recommended
	KFILSTCNT	= 40	! Fixed Value Recommended
	GBLPAGFIL	= 35000	! Minimum Value Recommended
	PROCSECTCNT	= 350	! Minimum Value Recommended
	SYSMWCNT	= 1200	! Minimum Value Recommended
	INTSTKPAGES	= 5	! Minimum Value Recommended
	VIRTUALPAGECNT	= 50000-65000	! Minimum for most Products
or	VIRTUALPAGECNT	= 90000	! Minimum for Multiple Solids, analysis users
	SPTREQ	= 2800	! Minimum Value Recommended
	MAXBUF	= 4096	! Minimum Value Recommended
	REALTIME_SPTS	= 100	! per Schlumberger Workstation
or	REALTIME_SPTS	= 200	! per Schlumberger Solids .Workstation
	CLISYMTBL	= 250	! Minimum Value Recommended
	LOCKIDTBL	= 350	! Minimum Value Recommended
	TIMEPROMPTWAIT	= 0	! Suggested that the clock prompt is disabled; it is not needed
	PFRATL	= 0	! Suggested disable AWSA on memory rich systems
	PFRATL	= 1	! Suggested enable AWSA on memory poor systems
	CHANNELCNT	= 480	! Minimum Value Recommended
	WSMAX	= 'x' Non più di 11.681	! x = Maximum number of pages allowable for any one process
	MAXPROCESSCNT	= 'x'	! x = Minimum value free under Load Load Not <30 calculate value
	BALSETCNT	= 'y'	! y = Minimum value free under Load Load Not <28 calculate value

!BALSETCNT is generally 2 less than MAXPROCESSCNT

MIN_	PQL_DASTLM	= 600	! Minimum Value Recommended
MIN_	PQL_DBIOLM	= ~~18~~ 450	! Minimum Value Recommended
MIN_	PQL_DDIOLM	= ~~18~~ 250	! Minimum Value Recommended
MIN_	PQL_DBYTLM	= ~~4096~~ 64.000	! Minimum Value Recommended
MIN_	PQL_DFILLM	= 200	! Minimum Value Recommended
MIN_	PQL_DPGFLQUOTA	= 50000	! Minimum Value Recommended
MIN_	PQL_DPRCLM	= ~~50~~ 20	! Minimum Value Recommended
MIN_	PQL_DTQELM	= 20	! Minimum Value Recommended
MIN_	PQL_DWSDEFAULT	= ~~512~~ 350	! Minimum Value Recommended

↑
1x BRAVO 3.6

```
MIN_PQL_DWSQUOTA      = ~~1024~~500    ! Minimum Value Recommended
MIN_PQL_DWSEXTENT     = ~~1536~~1500   ! Minimum Value Recommended
MIN_PQL_DENQLM        = ~~300~~ 60     ! Minimum Value Recommended
      PQL_DCPULM      = 0              ! Minimum Value Recommended
      PQL_DJTQUOTA    = 1024           ! Minimum Value Recommended
```

III. Packet and Pool Sizing

There are three phases to packet and pool sizing:

A. PHASE ONE
   1. Packet Sizing
   2. Recycle System

B. PHASE TWO

   1. Verifying Phase One settings
   2. Verifying GBLSECTIONS
   3. Verifying GBLPAGES
   4. Sizing PAGEDYN
   5. Recycle System

C. PHASE THREE

   1. Verifying Phase I settings
   2. Verifying Phase II settings
   3. Sizing NPAGEDYN
   4. Recycle System

A. Phase One

1. Packet Sizing

a. GBLSECTIONS and GBLPAGES sizing

First, check the GBLSECTIONS and GBLPAGES settings. The procedure for this is as follows:

GBLSECTIONS should be checked on a fully loaded and operating system. All authorized Editor and/or Solids users should be exercising the system fully. Issue the command:

```
$ INSTALL  :== MCR  INSTALL  /COMMAND
$ INSTALL
INSTALL>  LIST/GLOBAL/SUMMARY
INSTALL>  EXIT
```

The system will display the global sections used as well as global page information. For this part, we are interested only in Global Section Information.

The following is an example of the output:

Summary of Local Memory Global Sections

187 Global Sections Used, 21284/6116 Global Pages Used /Unused

Next run SYSGEN and issue the command SHOW GBLSECTIONS.

```
$ MCR SYSGEN
SYSGEN>  USE CURRENT
SYSGEN>  SHOW GBLSECTIONS
SYSGEN>  EXIT
```

The following is an example of the output:

Parameter Name	Current	Default	Minimum	Maximum	Unit	Dynamic
GBLSECTION	450	250	20	4095	Sections	

Now calculate the unused Global Sections. Look for the number of Global Sections Used + 50 for the value of GBLSECTIONS in SYSGEN. If the current value from SYSGEN is not at least the number used + 50, then raise the number of GBLSECTIONS by adding the following line to MODPARAMS.DAT.

```
GBLSECTIONS    ='x'          !x= The total used from INSTALL +50
                                 This is the minimum
                                 recommended value
```

For DEC Workstations:

```
GBLSECTIONS    = 512         !Fixed value for window software
                              may have to be higher.
```

Next, look at the Global Pages. This information should be based on a NON-LOADED system. When no users are on the system and no batch or other applications are running, enter the command for INSTALL and list the global summary information as before. (All images must be installed).

```
$ INSTALL  :== MCR  INSTALL  /COMMAND
$ INSTALL
INSTALL>  LIST/GLOBAL/SUMMARY
INSTALL>  EXIT
```

The system will display the global sections used as well as global page information. For this part, we are interested only in Global Page information.

The following is an example of the output:

```
        Summary of Local Memory Global Sections

187 Global Sections Used,   21284/6116 Global Pages Used/Unused
```

Next run SYSGEN and issue the command SHOW GBLPAGES.

```
$ MCR SYSGEN
SYSGEN>  USE CURRENT
SYSGEN>  SHOW GBLPAGES
SYSGEN>  EXIT
```

The following is an example of the output:

Parameter Name	Current	Default	Minimum	Maximum	Unit	Dynamic
GBLPAGES	27400	10000	512	-1	Pages	

The current value should be the same as Global Pages Used + Global Pages Unused. The recommended value to look for is calculated as follows:

```
   4000 VMS
+  2000 per Editor User
+  2000 for FSERV
-----------------------------------
=  Minimum Free Global Pages
```

Next, total the maximum number of Editor users to be on the system, including Alpha Terminals (VTs) and batch jobs. Take the total number of Editor users times 2000, plus 2000 for FSERV, plus 4000 for VMS and this will equal the desired total of free GBLPAGES. Now, add the desired total to the total used from INSTALL to obtain the minimum recommended value to add to MODPARAMS.DAT.

```
GBLPAGES        ='x'        ! x= Value determined by
                                 previous calculations.
```

For DEC Workstations:

```
GBLPAGES        ='y'        ! y= x value from above + 10000
                                 for the first 4 windows
                                 opened.
```

b. Fixed packet pool sizing

Typing the command SHOW MEMORY/POOL will display these values. See Figure 2.

The recommended values for packet sizing are as follows:

```
SRPCOUNT    =   In use + 900
IRPCOUNT    =   In use + 500
LRPCOUNT    =   In use + 20
```

Minimum Value Recommended is determined by using the table below. The values listed are base values and must be adjusted to achieve target free values. The minimum recommended value for LRPCOUNT is 80 for DEC

Workstations. SRPCOUNT and IRPCOUNT should be adjusted to obtain free values shown in the table.

Add these entries to SYS$SYSTEM:MODPARAMS.DAT

Try to achieve minimum values FREE, under fully loaded conditions, as follows:

	Without DECNET	With DECNET	LAVc with MSCP Serving
SRPs Free	750	900	1200
IRPs Free	350	500	750
LRPs Free	15	20	40

2. Recycle System

Recycling the system involves running AUTOGEN and rebooting. The simplest way to run AUTOGEN is to type the following command from a system manager's account:

```
$ @SYS$UPDATE:AUTOGEN  SAVPARAMS
$ @SYS$UPDATE:AUTOGEN  GETDATA  REBOOT  NOFEEDBACK
```

The system will run through its calculations and generate new SYSGEN parameter files and then reboot. After all three phases have been accomplished, the system should be monitored to verify that the values recommended have been achieved. If there is any change in the environment, such as additional users or applications or heavier use, simply edit SYS$SYSTEM:MODPARAMS.DAT and insert or modify the appropriate values, rerun AUTOGEN and reboot.

B. Phase Two

1. Verifying Phase One settings
2. Verifying GBLSECTIONS
3. Verifying GBLPAGES

4. Sizing PAGEDYN (Paged Dynamic Pool)

PAGEDYN should be sized so that under loaded conditions, there is a minimum value of 50000 in the largest column under a SHOW MEMORY/POOL. In the example in Figure 2, this would be 54480. Calculate the value for SYSGEN by taking the current value from SYSGEN and increase or decrease it to obtain the 50000 minimum in the largest column. Again, enter the appropriate value in SYS$SYSTEM:MODPARAMS.DAT as follows:

```
PAGEDYN  ='x'          ! x=Value calculated to obtain the target of
                           50000 in the largest column as a
                           minimum.
```

For DEC Workstations:

```
PAGEDYN  = 3072000     ! Minimum Value Recommended for window
                         software.

PAGEDYN  = 3500000     ! Suggested Value Recommended for window
                         software.
```

5. Recycle System

Use Autogen per section A2

```
$ SHOW MEMORY/POOL

------------------------------------------------------------------------------
                System Memory Resources on 4-May-1989 13:36:01:99

Fixed-Size Pool Areas (packets):    Total     Free     InUse     Size
Small Packet (SRP) List              1200     845*       355       96
I/O Request Packet (IRP) List         500     257*       243      208
Large Packet (LRP) List                80      59*        21     1584

Dynamic Memory Usage (bytes):       Total     Free   In Use   Largest
Nonpaged Dynamic Memory            384512   134880   249632    127872
Paged Dynamic Memory               299520    56880   242640     54480

Of the physical pages in use, 3672 pages are permanently allocated to VMS.
------------------------------------------------------------------------------
```

*In this example we have values of 845, 257 and 59 for SRP, IRP and LRP respectively. This would indicate the values are slightly low for SRP and IRP but not for LRP. This would be correct for LRP count if you are on a DEC Workstation.

Figure 2 PAGEDYN and NPAGEDYN Sizing

C. Phase Three

1. Verifying Phase One settings

2. Verifying Phase Two settings

3. Sizing NPAGEDYN (Nonpaged Dynamic Pool)

NPAGEDYN should be sized so that under loaded conditions, there is a minimum value of 120000 in the largest column under a SHOW MEMORY/POOL. In the example in Figure 2, this would be 127872. Calculate the value for SYSGEN by taking the current value from SYSGEN and increase or decrease it to obtain the 120000 minimum in the largest column. Again, enter the appropriate value in SYS$SYSTEM:MODPARAMS.DAT as follows:

```
NPAGEDYN ='x'        ! x= Value calculated to obtain the target of
                          120000 in the largest column as a
                          minimum.
```

For DEC Workstations:

```
NPAGEDYN = 1200000   ! Minimum Value Recommended for
                          window software.

NPAGEDYN = 2000000   ! Suggested Value Recommended for window
                          software.
```

Bravo3 Editor problems can occur with NPAGEDYN set too low. DML errors can occur when NPAGEDYN gets below 2000. The Editor will often stop completely if NPAGEDYN gets below 1200.

4. Recycle System

Use AUTOGEN per Section A2

IV. UAF and PQL Settings

Having the correct values for the User Authorization File is perhaps the single largest factor for insuring the best performance. See Figure 3 for listings of the recommended values as well as examples of UAF entries to demonstrate the appropriate settings for Schlumberger CAD/CAM application software users.

TIMESHARING Users		WORKSTATION Users	
Maxjobs:	0	Maxjobs:	0
Maxacctjobs:	0	Maxacctjobs	0
Maxdetach:	0	Maxdetach:	0
Prclm:	10	Prclm:	10
Prio:	4	Prio:	4
Queprio:	0	Queprio:	0
CPU:	(none)	CPU:	(none)
Fillm:	200	Fillm:	200
Shrfillm:	50	Shrfillm:	50
BIOlm:	18	BIOlm:	350
DIOlm:	18	DIOlm:	150
ASTlm:	600	ASTlm:	600
TQElm:	20	TQElm:	20
Englm:	300	Englm:	300
Bytlm:	40960	Bytlm:	40960
Pbytlm:	0	Pbytlm:	0
JTquota:	1024	JTquota:	1024
WSdef:	512	WSdef:	512
WSquo:	2048	WSquo:	2048
WSextent:	4096 Minimum 6144 Recommended	WSextent:	4096 to 12288, whatever memory will allow
Pgflquo:	50000	Pgflquo:	50000

SOLIDS users function better with a WSEXTENT of 6144 to 8192 or more if memory will allow.

4096
1024
5120

Figure 3 Recommended Values for UAF Entries

VAX STATION USER UAF Entry

Username:	VWS	Owner:	SCHLUMBERGER
Account:	USER	UIC:	[200,001] [USER, VWS]
CLI:	DCL	Tables:	
Default:	USER$DISK: [VWS]		
LGICMD:	LOGIN		

Login Flags:
Primary Days: Mon, Tue., Wed., Thur., Fri.
Secondary Days: Sat., Sun.
No access restrictions

Expiration:	(none)	Pwdminimum:	8	Login Fails:	0
Pwdlifetime:	60 00:00	Pwdchange:	13-Apr-1989 08:19		

Last Login: 4-May-1989 13:12 (interactive)
4-May-1989 08:59 (non-interactive)

Maxjobs:	0	Fillm:	200	Bytlm:	40960
Maxacctjobs:	0	Shrfillm:	50	Pbytlm:	0
Maxdetach:	0	BIOlm:	350	TLquota:	1024
Prclm:	10	DIOlm:	150	WSdef:	512
Prio:	4	ASTlm:	600	WSquo:	2048 (8192)
Queprio:	0	TQElm:	20	WSexten	12288
CPU:	(none)	Enqlm:	300	Pgflquo:	50000

Authorized Privileges:

TMPMBX NETMBX

Default Privileges:

TMPMBX NETMBX

Figure 3 (Continued)

The Process quota values for detached processes are determined by the SYSGEN PQL parameters. These can be viewed by entering SYSGEN and issuing the command SHOW/PQL.

```
$ MCR SYSGEN
SYSGEN>  USE CURRENT
SYSGEN>  SHOW/PQL
SYSGEN>  EXIT
```

See Figure 4 for an example of the PQL setting

Parameters in Use: CURRENT

Parameter Name	Current	Default	Minimum	Maximum	Unit	Dynamic
PQL_DASTLM	600	24	-1	-1	Ast	D
PQL_MASTLM	24	4	-1	-1	Ast	D
PQL_DBIOLM	18	18	-1	-1	I/O	D
PQL_MBIOLM	18	4	-1	-1	I/O	D
PQL_DBYTLM	40960	8192	-1	-1	Bytes	D
PQL_MBYTLM	8192	1024	-1	-1	Bytes	D
PQL_DCPULM	0	0	-1	-1	10Ms	D
PQL_MCPULM	0	0	-1	-1	10Ms	D
PQL_DDIOLM	18	18	-1	-1	I/O	D
PQL_MDIOLM	18	4	-1	-1	I/O	D
PQL_DFILLM	200	16	-1	-1	Files	D
PQL_MFILLM	16	2	-1	-1	Files	D
PQL_DPGFLQUOTA	50000	2048	-1	-1	Pages	D
PQL_MPGFLQUOTA	2048	512	-1	-1	Pages	D
PQL_DPRCLM	10	8	-1	-1	Processes	D
PQL_MPRCLM	8	0	-1	-1	Processes	D
PQL_DTQELM	20	8	-1	-1	Timers	D
PQL_MTQELM	8	0	-1	-1	Timers	D
PQL_DWSDEFAULT	512	100	-1	-1	Pages	D
PQL_MWSDEFAULT	256	60	-1	-1	Pages	D
PQL_DWSQUOTA	1024	24	-1	-1	Pages	D
PQL_MWSQUOTA	512	60	-1	-1	Pages	D
PQL_DWSEXTENT	1536	200	-1	-1	Pages	D
PQL_MWSEXTENT	1024	10	-1	-1	Pages	D
PQL_DENQLM	300	30	-1	-1	Locks	D
PQL_MENQLM	30	4	-1	-1	Locks	D
PQL_DJTQUOTA	1024	1024	-1	-1	Bytes	D
PQL_MJTQUOTA	1024	0	-1	-1	Bytes	D

Figure 4 PQL Settings

The PQL settings should be added to SYS$SYSTEM:MODPARAMS.DAT as outlined in previous examples. The PQL values also can be changed on a running system and take effect without a system recycle because they are dynamic parameters and take effect immediately. Dynamic parameters are indicated in SYSGEN by the presence of a D in the last column. The recommended procedure for changing any SYSGEN parameters is to make the changes in SYS$SYSTEM:MODPARAMS.DAT, but dynamic parameter changes should be reviewed by entering SYSGEN and changing the settings, writing the changes to the active list and noting the effects. Should these settings be acceptable, they should then be entered into SYS$SYSTEM:MODPARAMS.DAT.

```
$ MCR SYSGEN
SYSGEN>  USE ACTIVE
SYSGEN>  "MAKE CHANGES TO DYNAMIC PARAMETERS"
SYSGEN>  WRITE ACTIVE
SYSGEN>  EXIT
```

V. PAGEFILE and SWAPFILE Sizing

The last step in this tuning procedure involves sizing the PAGEFILE and SWAPFILE. The recommended sizes are:

PAGEFILE.SYS	60000
SWAPFILE.SYS	12000

If there are multiple PAGEFILES on other drives, the total size of all PAGEFILES should equal 60000 blocks minimum. The recommended procedure to size PAGE and SWAP files is either as an entry in SYS$SYSTEM:MODPARAMS.DAT or through the command procedure SYS$UPDATE:SWAPFILES. In some cases, it may be necessary to have smaller PAGE and SWAP files because of available disk space. For smaller PAGEFILES, adjust the PGFLQUOTA in the Users' UAF records to be a value less than the PAGEFILE size.

Schlumberger CAD/CAM recommends a PAGEFILE of 60000 blocks minimum. If there are 3 to 4 graphics users, increase the PAGEFILE to 75000. For 5 to 7 graphics users, increase the PAGEFILE to 90000. For 8 to 10 graphics users, increase the PAGEFILE to 120000.

Schlumberger CAD/CAM recommends a SWAPFILE of 12000 blocks minimum. If there are 4 to 7 graphics users, increase the SWAPFILE to 30000. For 7 to 10 graphics users, increase the SWAPFILE to 45000.

settings should be added to SYS$SYSTEM:MODPARAMS.DAT as outlined
examples. The PQL values also can be changed on a running system and
without a system recycle because they are dynamic parameters and take
ediately. Dynamic parameters are indicated in SYSGEN by the presence of
last column. The recommended procedure for changing any SYSGEN
s is to make the changes in SYS$SYSTEM:MODPARAMS.DAT, but
arameter changes should be reviewed by entering SYSGEN and changing
s, writing the changes to the active list and noting the effects. Should these
be acceptable, they should then be entered into
EM:MODPARAMS.DAT.

```
$ MCR SYSGEN
SYSGEN>  USE ACTIVE
SYSGEN>  "MAKE CHANGES TO DYNAMIC PARAMETERS"
SYSGEN>  WRITE ACTIVE
SYSGEN>  EXIT
```

.GEFILE and SWAPFILE Sizing

ep in this tuning procedure involves sizing the PAGEFILE and SWAPFILE.
mended sizes are:

PAGEFILE.SYS	60000
SWAPFILE.SYS	12000

e multiple PAGEFILES on other drives, the total size of all PAGEFILES
al 60000 blocks minimum. The recommended procedure to size PAGE
files is either as an entry in SYS$SYSTEM:MODPARAMS.DAT or through
and procedure SYS$UPDATE:SWAPFILES. In some cases, it may be
to have smaller PAGE and SWAP files because of available disk space.
PAGEFILES, adjust the PGFLQUOTA in the Users' UAF records to be a
han the PAGEFILE size.

ger CAD/CAM recommends a PAGEFILE of 60000 blocks minimum. If
to 4 graphics users, increase the PAGEFILE to 75000. For 5 to 7 graphics
ease the PAGEFILE to 90000. For 8 to 10 graphics users, increase the
to 120000.

ger CAD/CAM recommends a SWAPFILE of 12000 blocks minimum. If
to 7 graphics users, increase the SWAPFILE to 30000. For 7 to 10
sers, increase the SWAPFILE to 45000.

To make these changes in MODPARAMS.DAT add these lines to the file and AUTOGEN:

```
PAGEFILE        ='x'        ! x= Size of PAGEFILE based on number
                                of users.

SWAPFILE        ='x'        ! x= Size of SWAPFILE based on number
                                of users.

DUMPFILE        = 0         ! Schlumberger CAD/CAM recommends the
                                addition of this line. Should a DUMPFILE be
                                present its size will not be modified. Also, if
                                the SYSDUMP.DMP file has been deleted to
                                conserve disk space, this will keep it from
                                creating a new DUMPFILE.
```

In VMS Version 5.0, should the SYSDUMP.DMP file be deleted and DUMPFILE=0, the following line will be required in MODPARAMS.DAT:

```
DUMPSTYLE       = 1         ! Required in VMS Version 5.0 if no
                                DUMPFILE is present.
```

VI. VAXstation Modifications

The tuning procedure for VAXstations is the same as for a timesharing system, with the following exceptions:

- For Global Sections, the value should be 512 minimum, possibly higher.
- For Global Pages, add 10000 for every 4 windows to be opened on a VMS/UIS window system.
- LRPCOUNT should be 80 minimum.
- PAGEDYN should be 3072000 minimum, 3500000 recommended.
- NPAGEDYN should be 1200000 minimum, 2000000 recommended.
- The UAF parameters BIOLM and DIOLM should be 350 and 150 respectively.
- The PAGEFILE should be 60000 and the SWAPFILE 12000 minimum.

- CHANNELCNT may need to be as high as 400 for UIS window system. Possibly higher.

- CTLPAGES may need to be as high as 1500 for UIS window system. Possibly higher.

The UIS window system indicates if it requires more resource in SYSGEN when it tries to start up. If any SYSGEN parameter comes up needing more resource, add the parameter and the suggested value for it to MODPARAMS.DAT, then AUTOGEN.

APPENDIX B

DETAILED DESCRIPTION OF UAF RECORD FIELDS

USERNAME When the user logs in, he or she is prompted for a username (usually his or her last name) and a password. A username can be up to 12 characters.

OWNER This field lists the users full name for the system manager. It is not used by VMS.

ACCOUNT The accounting utility uses this entry as a method for grouping users. In this case, accounting statistics for all users with an account of AE can be easily obtained.

UIC The User Identificatiuon code (UIC) is used by the system to identify each user. This information is used to enforce protection on files, devices, queues, etc.

CLI Each user is assigned a Command Language Interpreter. In most cases, it is the Digital Command Language (DCL).

DEFAULT This defines which device and directory the user will be "put" into when he or she logs in. It can be modified by changing either the DEVICE (usually a disk) or the DIRECTORY (the directory designation).

LGICMD This specifies the login command file to be executed upon logging into the system. If this is blank, the system executes LOGIN.COM in the users default directory.

LOGIN FLAGS This is used to set login restrictions to restrict user's actions.

TABLES This entry specifies which Command Language Interpreter (CLI) table will be used.

PRIMARY DAYS Used to restrict users to log in only at certain times. Primary days are the days when most users are working on the system.

SECONDARY DAYS Used to restrict users to log in only at certain times. Secondary days are the days when most users are not

working on the system.

ACCESS RES.	Used to specify hours and modes of access to the system.
EXPIRATION	The date when the account becomes disabled.
PWDMINIMUM	The least number of characters a password can have.
LOGIN FAILS	This keeps track of how many times a user has attempted to log in since the last successful login and has failed.
PWDLIFETIME	This indicates how long (in days, hours, and minutes) a password can exist before it must be changed.
PWDCHANGE	This shows when a password was last changed.
LAST LOGIN	This shows the time of the last successful login, both interactive and non-interactive (batch).
ASTLM	The AST queue limit restricts the sum of the number of asynchronous system trap (AST) and scheduled wakeup requests a user can have at one time.
BIOLM	The buffered I/O limit restricts the number of outstanding buffered Input/Output operations permitted for a user's process at one time. Buffered I/O is usually terminal I/O.
BYTLM	The buffered I/O byte count restricts the amount of buffer space that a user's process can use at one time.
CPU	The CPU time limit restricts the amount of Central Processing Unit time that a user's process can use for each interactive session or batch job.
DIOLM	The direct I/O count limit restricts the number of outstanding direct Input/Output operations permitted for a users process. Direct I/O is usually disk or tape I/O.
ENQLM	The enqueue quota restricts the number of locks (associations between a job and a resource) a process and its subprocesses can own.
FILLM	The open file limit restricts the number of files that a user can have open at any one time.

JTQUOTA	The job table quota specifies the (initial) maximium number of bytes that the job-wide logical name table can have.
MAXACCTJOBS	The maximum account jobs limit specifies the maximun number of batch, interactive, and detached processes that may be active at one time for all users of an account.
MAXDETACH	The maximum detached processes limit specifies the maximum number of detached processes that may be active for a single username.
MAXJOBS	The maximum process jobs limit specifies the number of batch, interactive, and detached processes that can be active at one time for a usernamе.
PGFLQUO	The paging file limit restricts the number of pages (512 bytes of memory) that the user's process can use in the system paging file.
PRCLM	The subprocess creation limit restricts the number of subprocesses a user's process can create.
SHRFILLM	The shared files limit specifies the maximum number of shared files (files that can be accessed by more than one process at a time) that an account may have open at one time.
TQELM	The timer queue entry limit restricts the sum of entries that a user's process can have in the timer queue.
WSDEF	The default working set size is the initail allotment of memory for a process.
WSEXTENT	The working set extent specifies the maximum size to which a user's physical memory usage can grow.
WSQUO	The user's physical memory can grow on a typically loaded system. This parameter guarantees the user that the number of physical pages specified will be available.
AUTHORIZED PRIVELEGES	Priveleges available to the user, although they are granted unless specifically requested by the user.