

## TABLE OF CONTENTS

<b>TABLE OF CONTENTS</b> .....	<b>1</b>
<b>1- DESCRIPTION</b> .....	<b>2</b>
<b>2- TOOL START-UP</b> .....	<b>2</b>
2-1 Running the Tool .....	2
2-2 Results File.....	3
<b>3- FUNCTIONAL DESCRIPTION</b> .....	<b>3</b>
3-1 Configuration Files.....	3
3-1-1 Suite Configuration File .....	3
3-1-2 MR Configuration File .....	3
3-1-3 Gradient Configuration File.....	4
3-1-4 Coil Configuration File .....	4
3-1-5 Pre-scan Configuration File .....	4
3-2 Calibration Files .....	4
3-2-1 Bandpass Assymetry Files .....	4
3-2-2 B0 Dither Files .....	5
3-2-3 Group Delay File.....	5
3-2-4 B0 Image File.....	5
3-2-5 EPI White Pixel File .....	6
3-2-6 Probe Calibration File .....	6
3-2-7 Grafidy Calibration File .....	6
3-3 T-Test Files .....	7
3-4 Miscellaneous System Data .....	7
3-4-1 Software Revision.....	7
3-4-2 IPG Emulation Mode.....	7
3-4-3 Disk Space Report.....	8
3-4-4 Install Options .....	8
3-4-5 Host HW Inventory .....	8
3-4-6 File Checksum.....	8
3-4-7 TNS Status .....	8
<b>APPENDIX A EXAMPLE 'SYSTEM_HEALTH.LOG' OUTPUT FILE</b> .....	<b>9</b>
<b>REVISION HISTORY</b> .....	<b>15</b>

## 1- DESCRIPTION

System Health tool, 'sys\_health', checks the existence, validity, and consistency of selected fields in system configuration and calibration files. Check status, along with field values, are displayed on the screen and in an output file named 'system\_health.log' in the '/usr/g/service/log' directory. The tool is used to identify possible configuration file corruptions, incorrect parameter settings, bad or missing calibration procedures, and calibration failures. Since it serves to identify/isolate possible problems and eliminate redundancy in the calibration process, the 'sys\_health' tool helps shorten the time of a troubleshooting session and provide the operator with a quick summary of the system health.

## 2- TOOL START-UP

### 2-1 Running the Tool

Select the 'C-shell' from the Service Desktop and type the following in the shell window:

```
cd /usr/g/service/cclass <Enter>  
sys_health [-p] [-nf] [-h] | more <Enter>
```

Where the optional keys are defined as:

#### Note

Only one option at a time can be selected (i.e. **-p**, **-nf**, or **-h**; do not enter the "[ ]" characters or the command will not work). In most cases, the **-nf** option is used.

**-p** = allow the user to display plots of selected data sets. You will be prompted for confirmation before plotting the selected data set.

**-nf** = do not terminate program when a FATAL error is encountered.

**-h** = help option which displays the command options

**| more** = data display will stop at bottom of screen until the spacebar is pressed to display another screen of data.

Once the tool is started, it generates status output to the screen and to an output file named 'system\_health.log', located in the '/usr/g/service/log' directory until a fatal error is encountered (if option key of '-nf' is not used) or when the end of the tool is reached. An example of the output format is shown in Appendix A.

#### Note

If a system\_health.log file already exists, it will be copied to \*.log.bkup when sys\_health is initiated. So, two versions of the log may be kept, the current one and a \*.bkup one.

## 2-2 Results File

The output (system\_health.log) file can be displayed in a C-Shell as follows:

```
cd /usr/g/service/log <Enter>  
more system_health.log <Enter>
```

Press the <space> bar to view additional information until the end of the file is reached. Refer to Appendix A for an example System Health output.

## 3- FUNCTIONAL DESCRIPTION

The following sections provide a detailed description of the files checked when running the System Health tool.

### 3-1 Configuration Files

The System Health Check Script, 'sys\_health', reads selected fields from the following configuration files in '/usr/g/w/config':

```
Suite.cfg  
MRconfig.cfg  
CoilConfig.cfg  
GradientConfig.cfg  
prescan_config.cfg
```

#### 3-1-1 Suite Configuration File

The 'sys\_health' software extracts the following field from the Suite.cfg file located in '/usr/g/w/config':

- hospitalName (hospital name)

#### 3-1-2 MR Configuration File

The 'sys\_health' software extracts the parameters corresponding to the following fields from MRconfig.cfg file located in '/user/g/w/config':

- field\_strength (magnet field strength)
- specRFamp (broadband spectroscopy switch)
- govBody (governing body for the system)
- ampCalHead (amp cal factor for the head coil)
- ampCalBody (amp cal factor the the body coil)
- magnetSerNum (magnet serial number)
- mCoilTRdriver (multi-coil configuration switch)
- RFampType (RF amplifier type)
- gradientAmp (gradient amplifiier type)

### 3-1-3 Gradient Configuration File

The 'sys\_health' software extracts the parameters corresponding to the following fields from the GradientConfig.cfg file located in '/usr/g/w/config':

- SRMode
- psdRFWait1.5T/1.0T/0.5T
- psdGradWait1.5T/1.0T/0.5T
- GCoilType (gradient coil type)
- xfull (x-gradient cal maximum value)
- yfull (y-gradient cal maximum value)
- zfull (z-gradient cal maximum value)
- xRiseTime (x-gradient rise time)
- yRiseTime (y-gradient rise time)
- zRiseTime (z-gradient rise time)

### 3-1-4 Coil Configuration File

The 'sys\_health' software extracts and checks all parameters for all coils from the CoilConfig.cfg file located in '/usr/g/w/config'.

### 3-1-5 Pre-scan Configuration File

The 'sys\_health' software extracts the parameter corresponding to the following field from the prescan\_config.cfg file located in '/usr/g/w/config':

- ftg\_on (fast TG switch)

## 3-2 Calibration Files

### 3-2-1 Bandpass Assymetry Files

The 'sys\_health' software checks for the existence of the bandpass assymetry file, bcrvs1.dat, located in '/usr/g/bin'. If the system has a multi-coil configuration, 'sys\_health' checks for the existence of the following files:

- bcrvs1.dat
- bcrvs2.dat
- bcrvs3.dat
- bcrvs4.dat

If the system is configured with a fast receiver, 'sys\_health' checks for the existence of the following files:

- bcrvf1.dat
- bcrvf2.dat
- bcrvf3.dat
- bcrvf4.dat
- bcrvf5.dat

### 3-2-2 B0 Dither Files

The 'sys\_health' software checks for the existence of the B0 dither files located in '/usr/g/bin':

- b0vectors.dat.body
- b0vectors.dat.head

The number of entries in this file is verified. The start "esp" value is displayed. When the option '-p' switch is evoked, the following data files can be plotted on the screen:

- b0vectors.datb.xyz
- b0vectors.dath.xyz

### 3-2-3 Group Delay File

The 'sys\_health' software checks for the existence of the group delay calibration file 'delay.dat' located in '/usr/g/bin'. If the file exists, 'sys\_health' extracts the following axis delay parameter values from this file:

- x\_delay (sixth row)
- y\_delay (eighth row)
- z\_delay (tenth row)

If the delays between any two delays are more than 5, then the 'sys\_health' software flags and reports this as being abnormally high. The delay for the 100 KHz fast receiver filter should also be extracted from 'delay.dat'. This parameter, fr1\_delay, should not be 0 when the SRmode equals 120 or 150, or when the number of fast receiver is equal to 1.

The 'sys\_health' software checks for the existence of the following files:

- delay.espb.xyz
- delay.esph.xyz.

If these files are missing from the '/usr/g/bin' directory, 'sys\_health' flags this and reports a failure status. When the '-p' switch is evoked, 'sys\_health' gives the operator an option to plot the data file, 'delay.fst.xyz' on the screen.

### 3-2-4 B0 Image File

The 'sys\_health' software checks for the existence of the B0 Image calibration files:

- b0imgx.body (b0imgx.head)
- b0imgy.body (b0imgy.head)
- b0imgz.body (b0imgz.head)

If these files exist, 'sys\_health' extracts the B0 image results for each file, and compares these values to a pre-defined B0 ghost value, 5.0. If any of the extracted values are greater than 5.0, 'sys\_health' flags this and reports a failure status.

### 3-2-5 EPI White Pixel File

The 'sys\_health' attempts to open, read, and display the content of the following files created by EPI White Pixel Test:

- sn\_report.body (when in body mode)
- sn\_report.head (when in head mode)

These calibration files are located in "/usr/g/service/cclass/epi". If they are not found, the status message indicating that body epiwp or head epiwp has not been run is displayed. No fatal error is generated with the missing EPI white pixel files.

### 3-2-6 Probe Calibration File

The 'sys\_health' software checks for the existence of the probe calibration files, probepfix.dat and probesfix.dat located in the '/usr/g/caldir' directory. If both are located, 'sys\_health' extracts fields in these files corresponding to:

<u>probe-s</u>	<u>probe-p</u>
steam_x	press_x
steam_y	press_y
steam_z	press_z

If any of the above parameters have values of '0', then 'sys\_health' flags this and reports the status that probe tuning is required. The 'sys\_health' software also checks whether the values above have not been changed from the default load from cold (LFC) values. Under this condition, 'sys\_health' reports that probe tuning is required.

The 'sys\_health' module can also flag possible tuning problems. These problems include the conditions when the magnitude of steam\_x, steam\_y, steam\_z, press\_x, press\_y, or press\_z is greater than 0.4. Another possible probe tuning problem can arise when the sum of the magnitude of steam\_x, steam\_y, and steam\_z is greater than 0.6, or when the sum of the magnitude of press\_x, press\_y, and press\_z is greater than 0.6. When any of these conditions occurs, 'sys\_health' flags it and reports a failure status.

### 3-2-7 Grafidy Calibration File

The 'sys\_health' software reads the content of the following grafidy calibration files in the '/usr/g/caldir' directory:

- grafidyx.cal
- grafidyy.cal
- grafidyz.cal

All B0 and linear fitting time constant values (alphas and taus) are checked against pre-defined limits. These limits are:

- tau\_low = 1000 (us)
- tau\_hi = 3000000 (us)
- alpha\_low = 2.5
- alpha\_xterm\_low = -0.2
- alpha\_xterm\_hi = 0.2

When a value is out-of-bounds, then 'sys\_health' flags and reports the status.

In the linear fit case, 'sys\_health' checks whether or not the alpha constants are above the alpha\_low value (2.0) and are positive numbers.

In the cross-term case, 'sys\_health' determines which cross terms are enabled. If cross terms are applied, it verifies that the third and fourth fitting terms are zeros. Furthermore, all applicable cross-term tau values should be verified to be within the pre-defined range (tau\_low:tau\_hi).

In the short time constant linear case, 'sys\_health' verifies that the first tau and alpha terms are zeros and checks which axes have short time constant (STC) correction enabled. The short time constant alphas are checked to ensure they are all possible. Any abnormalities are flagged and included in the status report as a failure.

In the very long time constant case, 'sys\_health' verifies if VLTCs are enabled or disabled. All non-zero encounters are reported as a failure.

When the 'pl' switch is evoked, 'sys\_health' gives the user an option to plot the following data files on the screen:

- g\*short.dat
- g\*long.dat

### 3-3 T-Test Files

The 'sys\_health' software looks for the following T-test files in directory '/usr/g/service/data':

- HSS: (\*.HSS - High Speed Stability)
- RFT: (\*.RFT - RF Test)
- LVshim: (\*.LVS - LV Shim)
- SPT: (\*.SPT - System Performance Test)
- QRT: (\*.QRT - Quick Receiver Test)
- SST: (\*.SST - Small Sample Test)
- RFS (\*.RFS - RF Amp Status Test)
- TLT: (\*.TLT - Top Level Test)

The latest version of each test result file is also reported. If no result file of a particular test type is found, 'sys\_health' indicates this in the status report. If a \*.SPT file exists in the '/usr/g/service/data' directory, then 'sys\_health' reads the Group 9 data from the latest \*.SPT file. SPT Group 9 data contains pass/fail status of all the SPT tests. The 'sys\_health' software also displays results from the last LV Shim run and the last CTL SNR run.

### 3-4 Miscellaneous System Data

#### 3-4-1 Software Revision

The 'sys\_health' software determines the software revision on the current system by evoking the 'getver' command.

#### 3-4-2 IPG Emulation Mode

The 'sys\_health' software determines which system device is emulated by reading the 'ipg\_stage' file in the '/usr/g/w/config' directory. It extracts the line which starts with 'a'. Each letter on that line indicates a device mode or status.

- A (emulate PAC)
- B (emulate TYME II)
- C (emulate IWS-PC)
- D (emulate T/R driver)
- G (emulate gradient amp)
- H (emulate RF amp)
- I (emulate power monitor)
- M (emulate entire MDS)
- O (disable reporting of gradient overloads)
- Q (emulate the peripheral pulse signal from the PAC)
- R (emulate SRI)
- S (emulate bore wall temperature sensor)
- T (emulate table)
- W (disable watchdogging)
- X (disable SRI errors)
- Y (disable gradient errors)
- Z (enable watchdog debug mode)

When no components are emulated, then 'sys\_health' also reports this to the screen and the 'system\_health.log' file.

### **3-4-3 Disk Space Report**

The 'sys\_health' tool reports the number of free disk blocks on the current system.

### **3-4-4 Install Options**

The 'sys\_health' tool checks for installed options.

### **3-4-5 Host HW Inventory**

The 'sys\_health' tool lists the hardware components on the host computer and reports all SCSI devices on the host that are powered up.

### **3-4-6 File Checksum**

The 'sys\_health' tool checks file checksums. This feature is used to determine whether or not any software or patches have been loaded onto the system.

### **3-4-7 TNS Status**

The 'sys\_health' tools reads the Transient Noise Suppression (TNS) status, which reports the spike noise count data.

## APPENDIX A

### EXAMPLE 'SYSTEM\_HEALTH.LOG' OUTPUT FILE

```
{sdc@b3}[5] more system_health.log
System Health script run on:
Fri Nov 05 10:26:04 CST 1999
hostname = b5
Hospital Name = Bay5
```

```
-----
                          Config File Checks
-----
```

```
Platform type = LX
System software revision = 83.273N_M4_9944.c
Operating System Version = 6.5
Field Strength = 15000
SR Mode = 150.
Configured for broadband spectroscopy = NO.
Governing Body = fda2
absoluteAvgSar = 2.0
discreteAvgSar = 2.0
absolutePeakSar = 8.0
discretePeakSar = 8.0
dbdtMHW = 20
absoluteDbdtIEC = 66
discreteDbdtIEC = 20
dbdtFDA1 = 45
dbdtFDA2 = 66
Units for Dbdt research is %.
absoluteDbdtResearch = 66
discreteDbdtResearch = 66
Magnet type = 1.5T LCC
Multi Coil = YES
RF Amp type = 1.5T Analogic Solid State
Grad Coil Type = CRM
GradWarp coeff file correct.....PASS
Grad Amp Type = SGD HI-Slew Gradients
Fast TG is enabled in /w/config/prescan_config.cfg.
No functions are emulated out in the ipg_stage file.
Head Amp Cal Factor = 0.....PASS
Body Amp Cal Factor = 0.....PASS
psdRfWait = 166 Expected = 166.....PASS
psdGradWait = 168 Expected = 168.....PASS
Grad cal values of 29606 29505 28878 all pos.....PASS
Gradient rise time = 268 for this SR mode.....PASS
Maximum Standard Receiver Bandwidth is 125.0 Khz.
RF amp safety limits in MR config file are correct.
```

```
-----
                          Coil Config File Checks
-----
```

```
This system has the ".df" default coil config files.
All the individual coil config fields will be verified.
```

```
-----
The Coil named HEAD is a GE default coil name.
fastTGstartTA=120 Expected=120.....PASS
mcReconEnable=0 Expected=0.....PASS
mcPortEnable=0 Expected=0.....PASS
mcErrorEnable=0 Expected=0.....PASS
cableLoss=1.3 Expected=1.3.....PASS
```

xmitAtten=0 Expected=0.....PASS  
korecName= Expected=.....PASS  
startFastRec=4 Expected=4.....PASS  
multiCoil=no Expected=no.....PASS  
linearQuad=1 Expected=1.....PASS  
endFastRec=4 Expected=4.....PASS  
fastTGstartRG=12 Expected=12.....PASS  
extremity=no Expected=no.....PASS  
numRec=0 Expected=0.....PASS  
coilType=1 Expected=1.....PASS  
startRec=0 Expected=0.....PASS  
coilLoss=0.032 Expected=0.032.....PASS  
numFastRec=1.....PASS  
reconScale=1.53

-----  
The Coil named BODY is a GE default coil name.

fastTGstartTA=90 Expected=90.....PASS  
mcReconEnable=0 Expected=0.....PASS  
mcPortEnable=0 Expected=0.....PASS  
mcErrorEnable=0 Expected=0.....PASS  
cableLoss=1.2 Expected=1.2.....PASS  
xmitAtten=0 Expected=0.....PASS  
korecName= Expected=.....PASS  
startFastRec=4 Expected=4.....PASS  
multiCoil=no Expected=no.....PASS  
linearQuad=1 Expected=1.....PASS  
endFastRec=4 Expected=4.....PASS  
fastTGstartRG=12 Expected=12.....PASS  
extremity=no Expected=no.....PASS  
numRec=0 Expected=0.....PASS  
coilType=2 Expected=2.....PASS  
startRec=0 Expected=0.....PASS  
coilLoss=0.952 Expected=0.952.....PASS  
reconScale=5.00

-----  
The Coil named EXTREM is a GE default coil name.

fastTGstartTA=190 Expected=190.....PASS

:

*(All remaining configured site coils are displayed.)*

-----  
EPI Calibration File Checks

b0vectors.dat.body file is present in /usr/g/bin/.....PASS  
b0vectors.dat.head file is present in /usr/g/bin/.....PASS  
Body start esp=648: Head start esp=648: Expected = 768...FAIL  
delay.dat file present in /usr/g/bin/.....PASS  
delay.espb.xyz file present in /usr/g/bin/.....PASS  
delay.esph.xyz file present in /usr/g/bin/.....PASS  
Body B0 Image for scan 1 is less than 5 percent. PASS  
Head B0 Image for scan 1 is less than 5 percent. PASS  
Body B0 Image for scan 2 is less than 5 percent. PASS  
Head B0 Image for scan 2 is less than 5 percent. PASS  
Body B0 Image for scan 3 is less than 5 percent. PASS  
Head B0 Image for scan 3 is less than 5 percent. PASS  
Body B0 Image for scan 4 is less than 5 percent. PASS  
Head B0 Image for scan 4 is less than 5 percent. PASS  
Body B0 Image for scan 5 is less than 5 percent. PASS  
Head B0 Image for scan 5 is less than 5 percent. PASS  
Body B0 Image for scan 6 is less than 5 percent. PASS  
Head B0 Image for scan 6 is less than 5 percent. PASS

Body B0 Image for scan 7 is less than 5 percent. PASS  
Head B0 Image for scan 7 is less than 5 percent. PASS  
Body B0 Image for scan 8 is less than 5 percent. PASS  
Head B0 Image for scan 8 is less than 5 percent. PASS

-----  
PROBE Calibration File Checks  
-----

-rw-rw-r-- 1 28 Sep 21 00:29 /usr/g/caldir/probepfix.dat  
-rw-rw-r-- 1 29 Sep 21 00:17 /usr/g/caldir/probesfix.dat

All probe tuning values pass verification tests.....PASS

steam\_x = -0.269173  
steam\_y = 0.054054  
steam\_z = -0.077220  
press\_x = 0.010669  
press\_y = 0.043544  
press\_z = -0.068990

-----  
Grafidy Calibration File Checks  
-----

The tau ranges for X B0 eddy comp pass gross range check....PASS  
The tau ranges for Y B0 eddy comp pass gross range check....PASS  
The tau ranges for Z B0 eddy comp pass gross range check....PASS  
The alpha ranges for X B0 eddy comp pass gross range check....PASS  
The alpha ranges for Y B0 eddy comp pass gross range check....PASS  
The alpha ranges for Z B0 eddy comp pass gross range check....PASS  
The tau ranges for Linear on-axis eddy comp pass gross range check....PASS  
The alpha ranges for Linear on-axis eddy comp pass gross range check....PASS  
All linear on-axis alpha values are positive....PASS  
Cross term correction for X on Y is applied.  
Cross term correction for X on Z is NOT applied / not required.  
Cross term correction for Y on X is applied.  
Cross term correction for Y on Z is applied.  
Cross term correction for Z on X is NOT applied / not required.  
Cross term correction for Z on Y is NOT applied / not required.  
Cross term values for taus 3&4 and alphas 3&4 are zero....PASS  
All applicable cross term tau values pass gross range check....PASS  
X axis short time constant linear correction values enabled.  
Y axis short time constant linear correction values enabled.  
Z axis short time constant linear correction values enabled.  
All applicable linear shorts alphas are positive....PASS  
One or more of the VLTC taus or alphas have a non-zero value. VLTC's are enabled.

-----  
T-tests File Checks  
-----

No TLT files found in /usr/g/service/data  
The latest HSS run = -rw-rw-r-- 1 94962 Sep 28 22:54 99SM5422.HSS  
No RFT files found in /usr/g/service/data  
No SST files found in /usr/g/service/data  
No RFS files found in /usr/g/service/data  
The latest LVS run = -rw-rw-r-- 1 1256 Oct 26 19:20 9AQJ19RC.LVS  
No QRT files found in /usr/g/service/data  
The latest SPT run = -rw-rw-r-- 1 1372 Oct 26 18:34 9AQI3405.SPT

The above T test files can be viewed using REPORT TOOL or PC-REPORT.

SPT Group 10 R1 = 11  
SPT Group 10 R2 = 14  
SPT Group 10 TG = 59  
SPT Group 10 Cf = 63879293

Group 79 in latest SPT file not found.

The summary GROUP 9 from the latest SPT file is:

Z Isocenter       PASS  
Gradcal X         PASS  
Gradcal Y         PASS  
Gradcal Z         PASS  
Head Sys. Gain   MARGINAL   see group 10  
Head SNR         PASS

-----  
Last LV shim Results  
-----

Magnet Type = GE LCC 1.5T  
BW [Hz] = 200  
FOV [cm] = 60.000000  
DSV [cm] = 22.000000  
Cf = 63879426  
Inhomogeniety [Hz] = 2.585350  
Inhomogeniety [ppm] = 0.040482  
Z1=2.96 X=1.30 Z2X=-1.54  
Z2=-0.78 Y=-1.48 Z2Y=-3.16  
Z3=1.03 ZX=3.04 Z(X2-Y2)=-1.87  
Z4=-0.69 ZY=-0.50 ZXY=1.72  
Z5=-0.77 X2-Y2=-0.48 X3=-9.57  
Z6=0.53 XY=-0.50 Y3=-5.26

-----  
EPI White Pixel results files check  
-----

BODY EPIWP RESULTS

Date/time= 04/28/99,19:36:47  
Operator= 00000  
Bay= b5  
Reli= 0  
Process= A  
Iteration= 1  
Exam= 50316  
BRM unit number= 0  
Noise Mean Upper Limit= 4.6  
Noise Mean Lower Limit= 2.4  
Noise SD Upper Limit= 2.5  
Noise SD Lower Limit= 1.2  
Img 1 fails 2 WP, axis=x, mean=3.384, SD=1.957, th=67.3, clus=1, max=157  
Img 25 fails 2 WP, axis=x, mean=3.519, SD=1.839, th=65.2, clus=2, max=76  
Img 26 fails 6 WP, axis=y, mean=3.519, SD=1.839, th=65.2, clus=5, max=121  
Img 32 fails 3 WP, axis=y, mean=3.110, SD=1.773, th=61.2, clus=3, max=77  
Img 33 fails 1 WP, axis=z, mean=3.110, SD=1.773, th=61.2, clus=1, max=61  
Img 34 fails 1 WP, axis=x, mean=3.305, SD=1.964, th=67.0, clus=1, max=68  
Img 35 fails 1 WP, axis=y, mean=3.305, SD=1.964, th=67.0, clus=1, max=75  
Img 36 fails 1 WP, axis=z, mean=3.305, SD=1.964, th=67.0, clus=1, max=114  
Img 48 fails 2 WP, axis=z, mean=3.155, SD=1.937, th=65.4, clus=1, max=94

HEAD EPIWP RESULTS

Date/time= 04/28/99,19:43:27  
Operator= 00000  
Bay= b5  
Reli= 0  
Process= A  
Iteration= 1.log (91%)  
Exam= 50317  
BRM unit number= 0  
Noise Mean Upper Limit= 4.6  
Noise Mean Lower Limit= 2.4

Noise SD Upper Limit= 2.5  
Noise SD Lower Limit= 1.2  
Img 11 fails 1 WP, axis=y, mean=2.680, SD=1.720, th=57.4, clus=1, max=87  
Img 18 fails 2 WP, axis=z, mean=2.657, SD=1.491, th=51.7, clus=1, max=81  
Img 25 fails 5 WP, axis=x, mean=2.592, SD=1.547, th=52.7, clus=4, max=154  
Img 32 fails 1 WP, axis=y, mean=2.867, SD=1.862, th=61.9, clus=1, max=68  
Img 36 fails 3 WP, axis=z, mean=2.714, SD=1.641, th=55.7, clus=1, max=105

-----  
Free disk block report (Unix df command).  
-----

Filesystem	Type	blocks	use	avail	%use	Mounted on
/dev/root	xfs	170176	60080	110096	36	/
/dev/dsk/dks0d1s6	xfs	7145664	3460904	3684760	49	/usr
/dev/dsk/dks0d2s7	xfs	8364224	75496	8288728	1	/export/home1
/dev/dsk/dks0d1s5	xfs	725184	595344	129840	83	/export/home

-----  
Option key status.  
-----

msma	not installed
cine	INSTALLED
epli	INSTALLED
fastgrass	INSTALLED
fse2	INSTALLED
pcvi	INSTALLED
research	INSTALLED
spectro	INSTALLED
proactive	INSTALLED
gtof	INSTALLED
resrchpsd	INSTALLED
vconf	INSTALLED
sgd	INSTALLED
dwepi	INSTALLED
flairepi	INSTALLED
special	INSTALLED
smartprep	INSTALLED
ssfse	INSTALLED
threeplane	INSTALLED
hisris	INSTALLED
e3dtof	INSTALLED
fsexl	INSTALLED
bloodsupp	INSTALLED
fastcine	INSTALLED
tagging	INSTALLED
sgdperf	INSTALLED
dwepiez	INSTALLED
idrivePro	INSTALLED
idrive	INSTALLED
mns	INSTALLED
sprep99	INSTALLED
probe99	INSTALLED
sage	not installed

-----  
Host hardware inventory  
-----

1 225 MHZ IP30 Processor  
CPU: MIPS R10000 Processor Chip Revision: 3.4  
FPU: MIPS R10010 Floating Point Chip Revision: 0.0  
Main memory size: 512 Mbytes  
Instruction cache size: 32 Kbytes  
Data cache size: 32 Kbytes  
Secondary unified instruction/data cache size: 1 Mbyte

Integral SCSI controller 0: Version QL1040B (rev. 2), single ended  
Disk drive: unit 1 on SCSI controller 0  
Disk drive: unit 2 on SCSI controller 0  
Integral SCSI controller 1: Version QL1040B (rev. 2), single ended  
CDROM: unit 3 on SCSI controller 1  
Optical disk: unit 4 on SCSI controller 1  
Integral SCSI controller 2: Version QL1040B (rev. 2), single ended  
Comm device: unit 4 on SCSI controller 2  
Comm device: unit 4, lun 1 on SCSI controller 2  
IOC3 serial port: tty1  
IOC3 serial port: tty2  
IOC3 parallel port: plp1  
Graphics board: ESI with texture option  
Integral Fast Ethernet: ef0, version 1, pci 2  
Iris Audio Processor: version RAD revision 12.0, number 1  
PCI card, bus 0, slot 147, Vendor 0x7, Device 0x0

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The following files from product group MrpApps have  
checksums different than the original LFC checksums.  
This indicates these files have been patched or  
changed from the original LFC versions of the files.

f 26719	105	MrpApps.sw.base	export/home/sdc/.Sgiresources
f 15823	409	MrpApps.sw.base	usr/g/caldir/lv_15t_16sc_22dsv.full
f 1168	405	MrpApps.sw.base	usr/g/caldir/lv_15t_16sc_32dsv.full
f 25985	560	MrpApps.sw.base	usr/g/caldir/lv_15t_16sc_40dsv.full
f 41950	560	MrpApps.sw.base	usr/g/caldir/lv_15t_16sc_40dsv.half
f 46487	405	MrpApps.sw.base	usr/g/caldir/lv_15t_16sc_45dsv.full
f 3883	406	MrpApps.sw.base	usr/g/caldir/lv_15t_16sc_45dsv.half
f 25799	17992	MrpApps.sw.base	usr/g/insite/bin/grablock

-----  
TNS spike count data from /usr/g/service/cclass/mrt\_tns  
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port name : /dev/ttyd040  
Read from port (ASCII code, char): 99 c  
Read from port (ASCII code, char): 13  
Read from port (ASCII code, char): 10  
  
Read from TNS port (ASCII code, char): 62 >  
Read from TNS port (ASCII code, char): 56 8  
Read from TNS port (ASCII code, char): 53 5  
Read from TNS port (ASCII code, char): 51 3  
Read from TNS port (ASCII code, char): 57 9  
Read from TNS port (ASCII code, char): 50 2  
Read from TNS port (ASCII code, char): 53 5  
Read from TNS port (ASCII code, char): 13  
Read from TNS port (ASCII code, char): 10

Spike noise counter rolled over

Thu Nov 11 22:35:10 1999  
Counts read: 853925

The counter has increased by 50524 counts since Thu Nov 11 12:29:50 1999

delta = 50524 overflow = 1

\*\*\*\*\* END OF SYSTEM HEALTH DATA \*\*\*\*\*

## REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
A	August 8, 2000	R. Liu	Taken from 8x documentation