Rocket Model 204 SirMon

User's Guide

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Notices

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CHAPTER 1 Introduction to UL/SPF

UL/SPF is a family of products implemented as User Language application subsystems and designed to function together in a *Model 204* Online. Each product in the family can be installed and run independently, or each can be installed and run as a component of the integrated *UL/SPF* (User Language / System Productivity Facilities) framework.

All *UL/SPF* products share a common "look and feel" that is modelled upon IBM's ISPF facilities. *UL/SPF* supplants the sometimes arcane command language of *Model 204*, providing a highly productive full screen interface to a variety of common *Model 204* functions. *UL/SPF* enhances the capabilities of *Model 204* and bypasses many of its restrictions, enabling the performance of routine tasks that were previously impossible or prohibitively time-consuming.

UL/SPF comprises the following products:

SirDBA A system that analyzes *Model 204* databases to determine their logical structure, populating an internal catalog. *SirDBA* is distributed as a component of the *Sir2000 Database Analysis Tools*.

SirFile A comprehensive facility both for monitoring the physical storage utilization of *Model 204* database files and for warning users of the need for file reorganizations. *SirFile* maintains historical information that allows it to predict when file sizing problems *will* occur, allowing a DBA to take preventative action before an application outage results.

SirLib A system that provides change management and configuration control for *Model 204* User Language applications. Fully integrated within the programming environment, *SirLib* supports unique *Model 204* constructs such as file groups, while remaining nearly transparent to programmers.

SirMon A comprehensive facility for monitoring the performance and availability of *Model 204* online systems. *SirMon* combines the real time monitoring of *Model 204* performance with intelligent full screen displays that facilitate System Manager duties.

SirPro A collection of powerful and easy to use tools for programmers, database administrators, and application managers. *SirPro* provides programmers with powerful facilities for managing large libraries of User Language procedures, and it provides system managers with intuitive ISPF-like front ends to many *Model 204* system management commands.

SirScan A high performance utility that allows users in a *Model 204* Online to browse the contents of its journal in real time. *SirScan* permits ordinary

users to view journal entries generated by their own online session, and it allows users in ADMIN SCLASSes to browse journal entries for any set of users. The data is displayed in a full-screen browser with powerful searching commands and filtering options.

In addition, a number of subsystems that are not linked into the *UL/SPF* menuing structure may be accessed via APSY-transfer from the *UL/SPF* applications. One such subsystem is **FACT**, a utility for browsing *SirFact* dumps.

There are also many sample web and client-server applications developed for the Janus product family that are distributed and installed along with the *UL/SPF* products. These include **JANCAT**, an application that builds normalized views of *Model 204* data for use by *Janus Specialty Data Store* applications, and **JANSSL**, a system for creating and managing SSL certificate requests.

1.1 UL/SPF packaging and installation requirements

All of the *UL/SPF* products are *Model 204* application subsystems written in User Language. *UL/SPF* is distributed as a set of *Model 204* files in a backup format produced by the *Model 204* DUMP command. All User Language based products are distributed in a single *Model 204* procedure file called **SIRIUS**.

UL/SPF makes extensive use of specialized User Language $functions that enable the creation of User Language application systems that can support complex environments with minimal server size requirements. Prior to version 7.5 of Model 204, the $functions were part of the *Sirius Mods*, the installation of which (*Sirius Mods Installation Guide*) was a prerequisite for any *UL/SPF* product.

The *UL/SPF* $functions are included in the **http://m204wiki.rocketsoftware.com/index.php/List_of_$functions**, and their use is controlled by a product authorization mechanism. Many functions require that a specific *UL/SPF* product be authorized. Some functions may only be invoked from an authorized procedure “signed” by Sirius Software or Rocket Software. The `SIRIUS` command examines the status of all Sirius products installed in a *Model 204* Online.

1.2 Integrating UL/SPF with other subsystems

UL/SPF and any of its constituent products can be easily integrated with other User Language subsystems. Whenever a *UL/SPF* component product is exiting, it first checks to see if the global variable `SIRIUS.COMM` exists and has a non-null value. If so, the *UL/SPF* product performs a subsystem transfer using the value in SIRIUS.COMM as the name of the target subsystem.

For example, the following code fragment lets you transfer into SIRMON. When SIRMON exits, control is transferred to the application subsystem MENUSYS, provided that NEXTPROC is the current subsystem's communication global variable:

```
%RC = $SETG('SIRIUS.COMM','MENUSYS')
%RC = $SETG('NEXTPROC','XFER')
%RC = $SETG('XFER','SIRMON')
STOP
```

In addition to the individual User Language subsystems that implement the *UL/SPF* products, an umbrella *UL/SPF* subsystem, **ULSPF**, provides a menu that contains entries for all *UL/SPF* components installed at a site.

The *UL/SPF* subsystems support fast path navigation. For example, a *SirMon* user can transfer into *SirPro* Option 1 by typing:

```
=M.1.1
```

1.3 Related documentation

The following documentation is available from **http://docs.rocketsoftware.com** (M204 folder) or from **http://m204wiki.rocketsoftware.com**:

- ***SirDBA User's Guide***
- ***SirFile User's Guide***
- ***SirLib User's Guide***
- ***SirMon User's Guide***
- ***SirPro User's Guide***
- ***SirScan User's Guide***
- ***Sirius Mods Installation Guide***
- ***Model 204 System Manager's Guide***

The following documentation is available from the Model 204 documentation wiki (**http://m204wiki.rocketsoftware.com**):

- UL/SPF installation (http://m204wiki.rocketsoftware.com/index.php/UL/SPF_installation_guide)
- $functions (http://m204wiki.rocketsoftware.com/index.php/M204wiki_main_page#.24Functions)
- Model 204 commands (http://m204wiki.rocketsoftware.com/index.php/List_of_Model_204_commands)
- Model 204 files (http://m204wiki.rocketsoftware.com/index.php/Category:File_architecture_and_management)
- UL/SPF product messages (http://m204wiki.rocketsoftware.com/index.php/Category:Sirius_Mods_messages)
- User Language/SOUL (http://m204wiki.rocketsoftware.com/index.php/Category:SOUL)

CHAPTER 2 Overview of SIRMON

SirMon is a comprehensive facility for monitoring the performance and availability of *Model 204* Online systems that is completely integrated within the *Model 204* environment.

SirMon combines the real time monitoring of *Model 204* performance with intelligent full screen displays that facilitate System Manager duties. Displays may be scrolled and sorted by displayed statistics and parameters. *SirMon* also supports an automatic refresh mode for timed, “hands-off” operations. These features are designed to highlight significant resource consumers. Other features, such as the ability to restrict displays of users and subsystems to those holding a particular file open or preventing checkpoints, are designed to identify and solve problems with enqueuing and data availability.

Users may be BUMPed or have their PRIORITY reset from within *SirMon*, and subsystems may be STOPped and STARTed. *SirMon* is completely integrated with the *Model 204* security scheme, so users have access to commands in *SirMon* only if they have access to them at *Model 204* command level.

SirMon also provides a background monitor which measures an array of system statistics against user-defined thresholds, sending warnings when problems are detected.

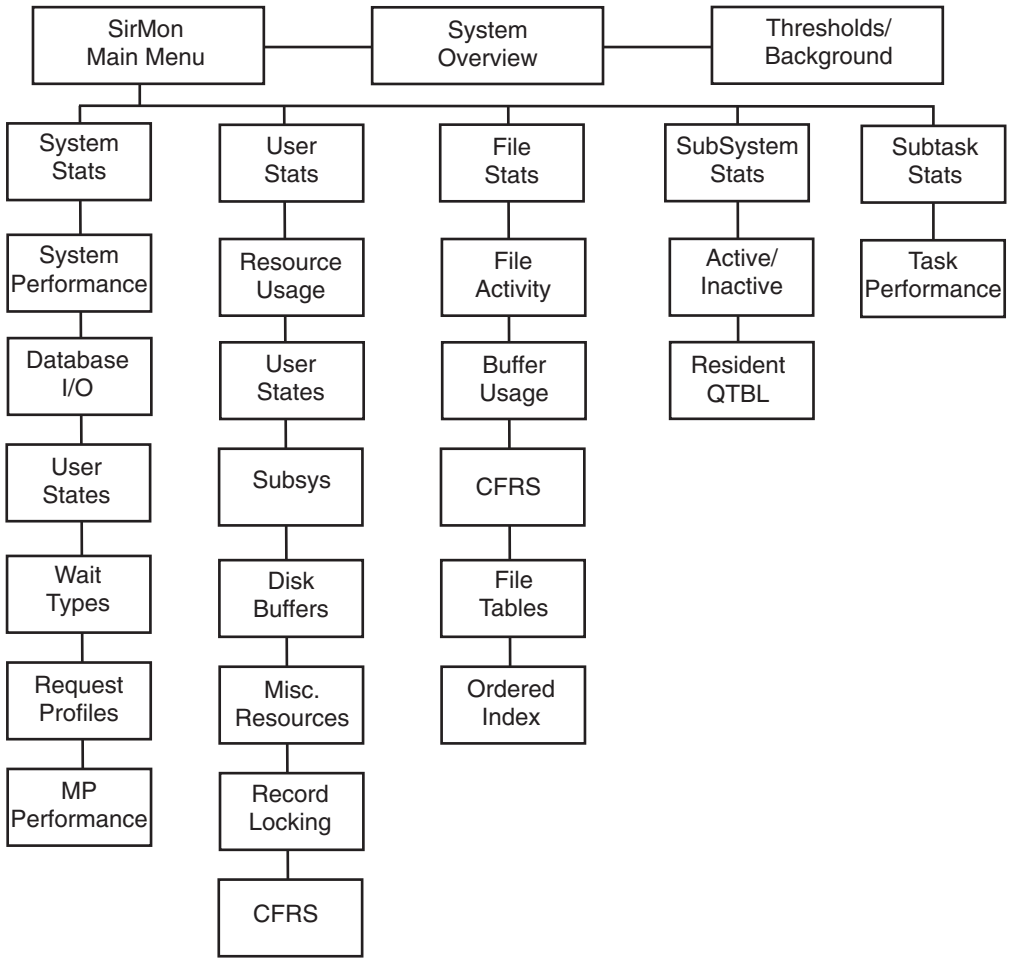
SirMon divides the *Model 204* Online into System, Subsystem, File, User, and Task statistics. In addition to those statistics collected by *Model 204*, *SirMon* provides an extensive collection of additional statistics and information that is invaluable for understanding the performance of a *Model 204* online. Online help facilities explain the meaning of all statistics available for display.

SirMon is distributed with a set of pre-defined screens for each display category. The information displayed ranges from general overviews to highly specific and targeted views of particular users, files, or other aspects of the *Model 204* system. Online help information is automatically tailored to the data displayed on the current screen. An integrated “fastpath” command structure allows fast navigation between the various display screens.

SirMon provides a collection of pre-defined monitoring screens that have been determined to be useful for analyzing *Model 204* performance and solving performance problems. Extensive customization facilities make it easy to design and implement screens that track information of interest to your particular site. These locally-defined custom screens are fully integrated within the *SirMon* end user interface, including support for display sorting, the standard prefix command set, fastpath access, and automatically generated help text.

CHAPTER 3 Application Structure

SirMon organizes *Model 204* information by system, user, file, subsystem and task statistics (as shown below), and it allows presentation of any combination of statistics within each category. The hierarchy shown below is also extensible via user-defined views ("Building Custom Screens" on page 41).



SirMon Application Hierarchy

Navigation of the *SirMon* system is not limited to the hierarchical menu structure. You can use the "fast path" method, bypassing the menu structure by entering transit commands in the command area of any *SirMon* window, as described in "SirMon Screens Fast Path" on page 14. Using a fast path also works from the *Model 204* command line outside of *SirMon*, if you precede the transit command by the APSY name, as in: `SIRMON 3.7`.

3.1 PF Keys in SirMon

The standard *SirMon* PF keys are:

PF1 Display help information for the current screen.

PF3 Exit the current screen and return to the previous screen or menu.

The variable set of PF keys have functions specific to the type of screen displayed or the content of the screen itself. The variable PF keys are:

PF2 Access to the Critical File Resource (CFRS) detail screen from any of the File Monitor screens. Place the cursor on the line for the file to be monitored and press PF2 In the customization selection screens, PF2 previews the screen being defined.

PF4 Sort by user, file, subsystem, or task number. This PF key is only available when viewing a scrollable display screen.

PF5 Sort by userid, file name, or subsystem name. This PF key is only available when viewing user, file, or subsystem data in a scrollable display.

PF6 Zoom on a selected user, file, subsystem, or task. Place the cursor on the line for the user, file, subsystem, or task to be monitored and press PF6. The screen will switch to a non-scrollable screen for the selected entity.

PF7 Scroll back to the previous page. If you enter M in command window and press PF7, you will return to the top of the list of data. PF7 is only available in scrollable screens.

PF8 Scroll forward to the next page. If you enter M in command window and press PF8, you will advance to the bottom of the list of data. PF8 is only available in scrollable screens.

PF9 Repeat the last valid command entered in the command window.

PF10 Display detail about the selected user, file, or subsystem, or about the entire system. On a scrollable screen place the cursor on the line for the user, file, or subsystem to be viewed in detail, and press PF10. The detail screen will display all critical performance and state data for the selected user, file, or subsystem, or about the entire system.

PF11 For system display, toggles the display between per-second rate display and per-screen rate displays. In the custom menu definition screen PF11 toggles the display of selectable statistics between a list of statistic names and a list of names with associated help text.

PF12 Refreshes the data displayed in scrollable screens. Having a specific refresh key allows users in scrollable screens to collect statistics for a group of users or files, and then to scroll through the snapshot without updating the displayed data. In the customization selection screens, PF12 saves the selected parameter entries.

3.2 SirMon Commands

The commands available in *SirMon* include commands for scrolling, searching, sorting and limiting the display data, bumping users, and timing screen displays. Certain commands are not always available. For instance, scrolling commands only work on screens with scrollable lists of display data. *SirMon* commands are:

L n The L command positions the data display at line number n when you press enter. If n is greater than the total number of items in the display list you will be positioned at the last item.

F Find will search from the current line (top line) to the bottom of the display list for your search string. For example, `F xxx` will search for the string xxx. A variant of this command is the `/` instead of `F`.

-F Find will search from the current line (top line) to the top of the display list for your search string. For example `-F xxx` will search for the string xxx. A variant of this command is the `-/` instead of `-F`.

nn Moves the display forward nn lines. To move backward nn lines enter a negative number. `-9` will move the display back 9 lines.

ALL The ALL command removes any restrictions on the display of entities. That is, it turns off the effects the the USER, FILE or SUBSYS commands.

BUMP n Bumps a specific user based on user number. Only a single user may be bumped with the BUMP command.

T x y Invokes an automatic refresh mode of operation. This command automatically refreshes the screen x times, every y seconds: `T 10 2` for example, refreshes the screen 10 times at intervals of 2 seconds. The commands TIME, TIM and TI are valid synonyms. Automatic refresh operation may be interrupted using any attention generating key.

FILE When monitoring users, files or subsystems, the list of displayed entities may be limited to those with a particular file open. The format of the command is:

```
FILE filename
```

where filename is any valid *Model 204* file name. Typing either FILE with no file name, or typing ALL, returns the display to the complete list of active Users or defined Subsystems.

USER When monitoring files or users, the list of displayed entities can be limited to those held open by a particular user, or in a user display, those users matching a particular pattern. Only one user may be specified, and the format of the command is:

```
USER userno
```

where userno is the User number of an active user. Typing either USER with no user number, or typing ALL, returns the display to the complete list of files.

SUBSYS When monitoring users or files, the displayed list can be restricted to users who are running in a particular subsystem or files open by a particular subsystem. The format of the command is:

```
SUBSYS subsysname
```

where subsysname is the name of any active subsystem. Typing SUBSYS or ALL returns the display to all users or files.

CHKP When monitoring users, the displayed list can be restricted to users who are currently preventing checkpoints with an active updating transaction. The format of the command is:

```
CHKP
```

Typing CHKP OFF or ALL returns the display to all users.

SORT Scrollable screens may be sorted by any displayed statistic or parameter by typing

```
SORT field1 t [field2 t] ..
```

where *fieldN* is the screen title of any displayed information in the scrollable portion of the screen, and *t* is either A for ascending, or D for descending order.

Prefix commands are only available on Scrollable screens (described in next section). Prefix commands are entered in the input area immediately prior to a User, File, or Subsystem name to invoke some action against them. Valid Prefix commands are:

STOP In the Active/Inactive Subsystem monitor screen, users may issue the STOP command in the prefix area before the subsystem name. If the user has STOP privileges for the subsystem, it will be stopped and the running status

will be updated on the monitoring screen when the screen refresh key is pressed. If the user does not have permission to stop the subsystem, a warning message will be issued and the subsystem status will not change.

START In the Active/Inactive Subsystem monitor screen, users may issue the START command in the prefix area before the subsystem name. System action is similar to the STOP command (above).

B When entered into the prefix area of a User statistics display, BUMPs the displayed user from the system.

0/L/S/H Entering any of these codes in the prefix command area on a User Monitoring screen alters the PRIORITY of the specified user. Specifying H changes the user's priority to high (minimum priority 80 and maximum 127), S to standard (minimum 32, maximum 79), L to low (minimum 0, maximum 47), and Ø changes the user's priority range to a low of 0 and a high of 16.

These priority settings remain in effect for the remainder of the user's session or until they are changed again by the system administrator. (As with the PRIORITY command, the user's priority in CCASTAT is not changed).

3.3 Screen Format Overview

3.3.1 Non-Scrollable screen format

Non-Scrollable screens present a single line of performance data each time the screen is refreshed (the ENTER key acts as the refresh key). The most recent line of performance data is always presented at the top and highlighted. Each previously displayed line is pushed down one until it disappears off the bottom of the screen. This screen is used to present system views, and to zoom in on selected individual users or files.

```
------------- SYSTEM --- ULSPF500/4.1.1E/CMS ------------ INTERVAL: 2.24 SEC---
===> _
 TIME        CPU    PCPU   SCRNS RESPIND    SVIO    DKIO  JRNLIO  CHKPIO   PER
16:41:13    0.009   65.63    0.45    1.34    0.00    0.00    0.00    0.00   SEC
16:41:11    0.336   96.49    0.70    1.34    0.00   78.97    0.00    0.00   SEC
16:41:08    0.325  100.00    1.02    1.79    0.00   80.45    0.00    0.00   SEC
16:41:07    0.393   99.28    0.57    1.78    0.00   99.37    0.00    0.00   SEC
16:41:05    0.267   78.71    1.36    1.78    0.00   59.95    0.00    0.00   SEC
16:41:05    0.348   94.55    1.34    1.77    0.00   82.89    0.00    0.00   SEC
16:41:04    0.382  100.00    0.95    1.76    0.00   86.83    0.00    0.00   SEC
16:41:03    0.302   96.29    0.78    1.75    0.00   68.99    0.00    0.00   SEC
16:41:02    0.320  100.00    1.10    1.74    0.00   74.56    0.00    0.00   SEC
16:41:01    0.411  100.00    0.60    1.73    0.00  100.66    0.00    0.00   SEC
16:40:59    0.355   97.32    0.61    1.73    0.00   83.18    0.00    0.00   SEC
16:40:57    0.202   87.34    0.08    1.71    0.00   47.18    0.32    0.00   SEC
16:40:32    0.058   86.39    0.22    1.67    0.00   13.43    0.06    0.11   SEC
16:40:14    0.000   79.17    0.01    1.30    0.00    0.00    0.00    0.00   SEC
16:38:51    0.005   62.50    0.27    1.33    0.00    0.00    0.00    0.00   SEC
16:38:47    0.014   74.28    0.34    1.33    0.00    0.24    0.05    0.13   SEC
16:38:09    0.004   52.78    0.19    1.32    0.00    0.00    0.00    0.00   SEC
--------------------------------------------------------------------------------
1/Help                3/Quit
                      9/Repeat    10/Detail      11/Screen
```

Non-scrollable screen showing system activity

The title line of the non-scrollable screen displays, from left to right:

- The category of measurement (System, User, File, Subsystem, or Task)
- The current online region name, the release of *Model 204*, and the system ID (each separated by a slash)
- The total elapsed time (INTERVAL) for the online run when the screen is first displayed (or the elapsed time since the last screen refresh)

The top line is always the latest information, with previous snapshots being pushed down the screen.

There is no prefix command area on this screen. Commands are entered from the command line. There are no search or paging commands in this screen structure.

3.3.2 Scrollable screen format

Scrollable screens present lists of information that can be paged through using PF7 and PF8. Displayed data is refreshed by pressing PF12. This type of screen is used to present user, file, subsystem or task performance data.

```
---------USER 1/13 ----- ULSPFPRO/4.1.1E/CMS ------ INTERVAL: 3.11 SEC---------
===> _
    NO USERID     WAITU WAITTIM WT  WAITDSC      WAITFIL  PNAME21L
     0 ULSPFPRO           31343  4 OPERI
     1 ULSPFPRO           31348  3 USERI                  JANUSOMNI
     2 ULSPFPRO           41.77 12 SLEEP
    21 ALAN                0.00                           MOPR-SCROLL
    22 HOMER             173.29  3 USERI                  PUPR-EDIT1
    23 MARGE             128.87  3 USERI                  SCPR-SCAN1
    24 ALAN               63.85  3 USERI                  JANCATP_TABLES
    38 CHKPTIMR            5.25 12 SLEEP
    39 CHKPPST             5.24 12 SLEEP
    40 CHKPAWW             9.33 12 SLEEP
    41 PRT-PART          642.57 12 SLEEP
    42 PRT-PERF          138.98 12 SLEEP
    43 JANUSTCP            0.28  3 USERI



--------------------------------------------------------------------------------
 1/Help             3/Quit       4/SortNO     5/SortID         6/Zoom
 7/Up     8/Down    9/Repeat    10/Detail                    12/Refresh
```

Scrollable screen showing user activity

The title line of scrollable screens displays the category of measurement in the upper left corner of the screen. In addition, the title line identifies the current online region name, the release of *Model 204*, the JES job id, and the system id. Each piece of this identification data is separated by a slash. The initial INTERVAL displayed when a user first enters any screen, is the user's connect time. Thereafter the interval is elapsed time since the last screen refresh.

You may enter command strings for rapid transit through the application structure, as well as search and scroll commands in the command window. Scroll commands allow you to move to a selected line by entering the line number, or you may move to the top by entering `TOP`, or you may move to the bottom by entering `BOT`.

To search from the current line (the top line of the display area) to the bottom of the list of users, files or subsystems, enter `/` or `F` followed by the search string, for example: `/BIGFILE` to find the string BIGFILE. Searching backwards is accomplished by entering `-/` or `-F`.

The prefix command area allows bumping of users, starting or stopping of subsystems, and all other prefix commands described in the previous section.

Where wildcards are permitted in command line commands, the following wildcard conventions hold:

`*` matches any group of characters.
`?` matches any individual character.
`“` indicates that the following character should be matched literally, even if it is asterisk (`*`), question mark (`?`) or double quote (`“`).

For example:

*	matches anything.
A	matches anything with the letter A in it.
????	matches anything with 4 characters in it.
*X?	matches anything whose second-to-last character is an “X”.
“*AB	matches only the string “*AB”.

3.4 Menu processing

SirMon menus provide access to monitoring screens by number. Choosing a valid number advances the user session to the selected screen.

The command X has the same effect as PF3 in every menu: the user is returned to the previous menu in the application hierarchy. If the user is at the *SirMon* Main Menu, PF3 will return to the *UL/SPF* main menu if the **ULSPF** subsystem is active, while X will return to the *Model 204* command line.

3.5 SirMon Screens Fast Path

Since *SirMon* is such an important tool for monitoring performance and troubleshooting, it is useful to be able to move quickly from one screen to another. You can do so using the “fast path” features built in to the *UL/SPF* products: you enter an equal sign (=) followed by the “screen number” in the command area of a *SirMon* screen, and *SirMon* jumps to that screen. For example, to jump to the User Monitor/Resource Usage screen, you enter =3.1 in the command area of a *SirMon* screen.

The *SirMon* screen numbers are shown below (except, of course, any custom screens you may have created):

1. System Overview Screen

2. System Monitor
   - U. Update the selection menu
   - A. User AD-HOC
   - 1. System Performance
   - 2. Database I/O Performance
   - 3. User State Distribution
   - 4. User Wait Type Dist
   - 5. Request Profile
   - 6. MP Performance

3. User Monitor
   - U. Update the selection menu
   - A. User AD-HOC

1. Resource Usage
2. User State Display
3. Resource Usage and Subsys
4. Disk Buffer Usage
5. Misc. Resource Usage
6. Record Locking Table Usage
7. Critical File Resources

4. File Monitor
   U. Update the selection menu
   A. User AD-HOC
   1. File Activity
   2. Buffer Usage
   3. Critical File Resource
   4. File Table Usage
   5. Ordered Index Usage

5. Subsystem Monitor
   U. Update the selection menu
   A. User AD-HOC
   1. Active/Inactive Subsystems
   2. Resident QTBL Usage

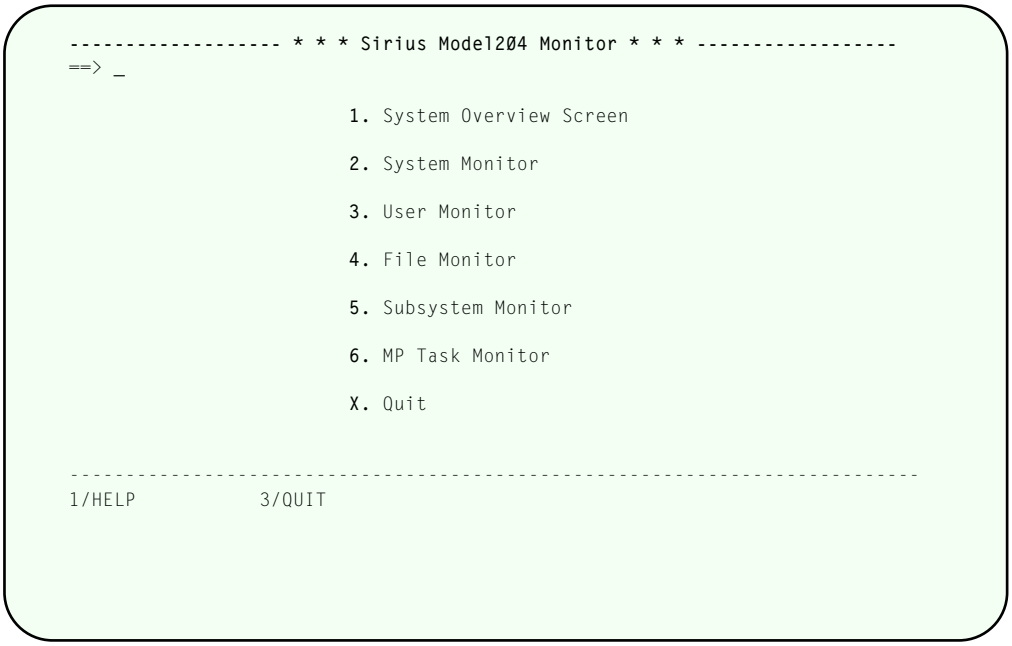
6. MP Task Monitor
   U. Update the selection menu
   A. User AD-HOC
   1. Task Performance

X. Quit

CHAPTER 4 SirMon Main Menu

The *SirMon* main menu is the primary entry point into *SirMon*. The main menu is reached by any of the following ways:

- Entering the subsystem name `SIRMON` at *Model 204* command level.
- Selecting the `Monitor` option from the *UL/SPF* main menu.
- Typing `=` in the command window of any *SirMon* screen.
- Typing `=M.4` in any *UL/SPF* screen.



SirMon main menu

SirMon main menu options are:

1. System Overview Screen
Presents the major items of interest for measuring and determining the current condition of the active, online *Model 204* region. This single panel, described further in "System Overview Screen" on page 19, presents each statistic as a rate per second and per screen (where appropriate), and as a total.

Threshold setting ("Threshold Setting" on page 21) and background task definition and initialization ("Background Monitor" on page 23) are accessed from this screen.

2. System Monitor
   Presents a sub-menu of monitoring screens (see “System Monitor Menu” on page 27) that are specific to the system's overall condition and performance.

3. User Monitor
   Presents a sub-menu of monitoring screens (see “User Monitor Menu” on page 29) that show specific views of all users in the system.

4. File Monitor
   Presents a sub-menu of monitoring screens (see “File Monitor Menu” on page 33) that show specific views of all open files in the system.

5. Subsystem Monitor
   Presents a sub-menu of monitoring screens (see “Subsystem Monitor Menu” on page 37) that show specific views of subsystems defined to the system. The second option on this submenu provides information for both active and inactive subsystems. This includes a list of defined subsystems, their running status, number of active users, procedure prefixes and access type. Subsystems may be started and stopped from this screen.

6. MP Task Monitor
   Presents a sub-menu of monitoring screens (see “Task Monitor Menu” on page 39) that show specific views of all tasks in the system. If the MP/204 feature is not installed, the task monitor screens only display information for the maintask (task 0).

Each of the sub-menus in 2-6 above allows up to 32 views of information within the statistics category. A small number of views come pre -formatted with *SirMon*:

- 7, for system statistics
- 8, for user statistics
- 6, for file statistics
- 2, for subsystem statistics
- 1, for task statistics

Users may define and save additional custom views, as described in “Building Custom Screens” on page 41. In addition to system-wide custom views that appear on the menus for all users, *SirMon* allows individual users to save a single “adhoc” view for each menu. User adhocs are accessed as menu option `A` on each menu (so a user's File adhoc is accessed as `SIRMON 4.A`), and each user's view is unique to that user.

CHAPTER 5 System Overview Screen

Option 1 from the *SirMon* main menu presents a formatted, pre-defined, system overview screen. This screen is useful in displaying the overall state of a running Online. This allows an Administrator to quickly determine if there are any problems in the system, and if so, to identify the areas needing further examination. This screen is also accessed via PF10 (DETAIL) from any System Monitor screen (see "System Monitor Menu" on page 27).

```
---------- System --- ULSPF500/4.1.1E/CMS -------- Interval: 326276.87 SEC--
===> _
        CPU   SCRNS UPTRANS    SVIO  CHKPIO  JRNLIO  LKWAIT CFRCONF    PCPU
SEC   0.001    0.00    0.00    0.00    0.01    0.00    0.00    0.00    Ø.58
SCR   2.732    1.00    0.32    0.90   32.61    2.63    0.00    0.00    Ø.58
TOT     344     126      40     113    4109     332       0       0    0.58

       DKRD    DKWR    DKPR DKRDPRP    DKRR   DKSAW  DIRRCD  CCATRD  CCATWR
SEC    0.03    0.00    3.68   99.53    0.00    0.00    3.22    0.00    0.00
SCR   75.17    8.57 9541.04   99.53    0.00    3.00 8331.97    1.48    4.20
TOT    9472    1080 1202171   99.53       0     378 1049828     186     529

    RESPMED  RESP90 RESPAVG  VTAMBW RSXCOMP RECENQP CCATMPP CCATMHP
CUR    0.04    1.71    6.27       0       0    0.51   28.12   31.45

     CHKPTO CHKPTOU CHKPNCK CHKPALP JRNLALP  SDMACT SDMACTH SDMFREL
CUR       0      -1       1    0.18   83.18       2       6       9

     NLOGON   NREDY   NBLKI   NBLKO   NOFFQ   NWTSV   NRUNG  NWTCFR
CUR       8       0       2       5       0       0       1       0
--------------------------------------------------------------------------------
1/Help   2/Background    3/Quit
                                                        11/Threshold
```

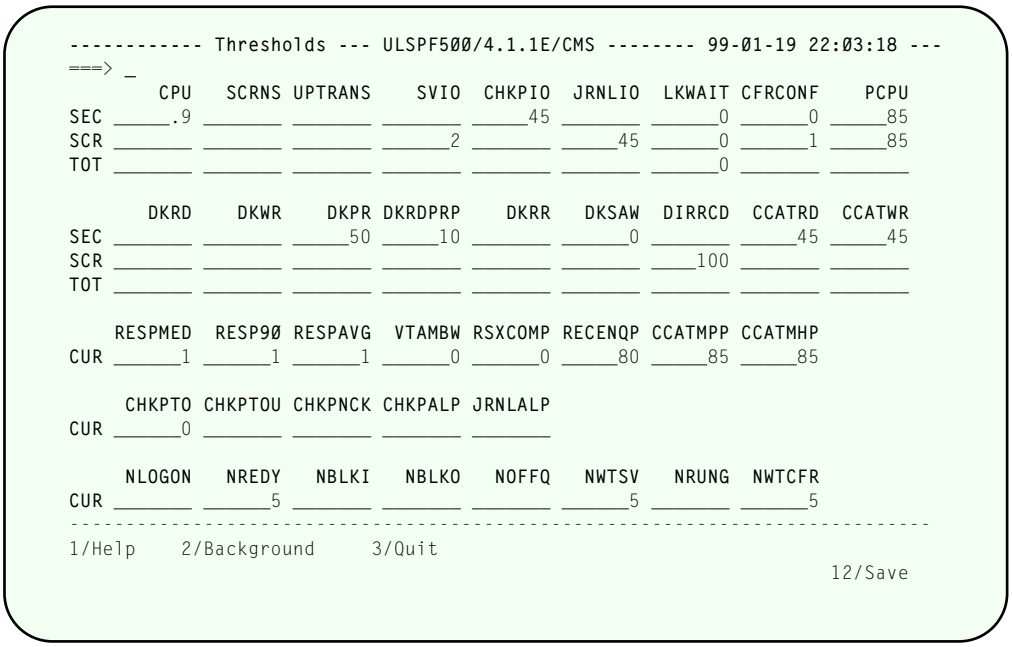
System Overview screen

The values for any statistics that have exceeded pre-set limits are highlighted in order to draw attention to potential performance problems. These limits are set in a companion screen that is excessed via PF11 from the system overview screen. Currently PCPU is the only statistic that is highlighted when it drops *below* its threshold. Other statistics, such as response time indicators, are highlighted when their values rise above the threshold.

The threshold values may also be used to direct the *SirMon* "Background Monitor", described in "Background Monitor" on page 23. *SirMon* provides a default set of threshold values, which will require customization to consider the specifics of each installation.

CHAPTER 6 *Threshold Setting*

Pressing PF11 from the System Overview screen causes the Threshold Specification screen to be displayed. Threshold settings determine which statistics will be highlighted on the System Overview screen, and which will be the subject of messages sent by the background monitor ("Background Monitor" on page 23), when it is active.



Threshold Specification screen

Threshold values may be specified for any statistic which appears on the System Overview screen. The top half of the screen lists two sets of statistics that can be monitored for total values, per-second values, and per-screen values. The bottom half of the screen lists three sets of statistics that can be monitored for total values only.

Any statistic with a blank in the corresponding threshold value will never be highlighted on the System Overview screen, and it will be ignored by the Background Monitor.

PF12 saves the threshold settings to disk. PF2 provides access to the Background Monitor screen.

CHAPTER 7 Background Monitor

The Background Monitor is a User Language application subsystem designed to execute as a “background” process, that is, without a terminal. Once started, the Background Monitor examines *Model 204* performance on a regular basis and generates alerts if a statistic on the System Overview screen exceeds its threshold for more than a user-specifiable number of monitoring intervals.

PF2 from either the System Overview screen or the Threshold Specification screen causes the the Background Monitor screen to be displayed. The Background Monitor screen provides control over certain characteristics of the Background Monitor, and also allows users in the “ADMIN” SCLASS to start the Background Monitor. The Background Monitor may also be started from the *Model 204* command line, as described at the end of this section.

```
------------ Background Monitor --- ULSPF500/4.1.1E/CMS ------- 13:35:43 -----
==> _


   Default monitoring interval (seconds)                  ==> 45

   Send warnings after (number of intervals)              ==> 2

   Minimum minutes between warning messages               ==> 20

   Don't warn during first xxx online minutes             ==> 30

   Send warnings to the journal? (Y/N)                    ==> Y

   Users to receive warning messages (separate by blanks)

      ==> OPR ALAN RENNY JEFF


--------------------------------------------------------------------------------
1/Help          3/Quit                          5/Init-Backgrnd
                                  9/Repeat                          12/Save
```

Background Monitor screen

User-defined characteristics of the Background Monitor are:

Default monitoring interval (seconds)
: Specifies the number of seconds between Background Monitor samples.

Send warnings after (number of intervals)
: Allows the Background Monitor to ignore situations where a statistic only momentarily exceeds its threshold. This parameter suppresses the warning unless a problem is detected for a number of consecutive monitoring intervals.

For example, if this parameter is set to 3, and the monitoring interval is set to 30 seconds, a warning is issued only if a problem persists for 90 seconds or more (3 consecutive samples separated by 30-seconds each).

Note that all these settings are applied *per statistic*, so for instance, if DKRD-per-screen and DKPR-per-screen both exceed their threshold for 2 intervals, then DKRD-per-screen returns to a sub-threshold level and DKPR-per-screen does not, the counter for DKRD is reset to 0 and a warning is issued for DKPR-per-screen (again, using the example where this parameter is set to 3).

Minimum minutes between warning messages

Prevents a storm of messages from being generated in response to a single problem, which could be especially annoying while you are already working on the problem. The “time of last warning” is maintained for each monitored statistic. Once a warning is sent for a statistic, the number of minutes specified in this parameter must pass before another warning will be issued for that statistic.

Don't warn during first xxx online minutes

Prevents the Background Monitor from generating performance alerts during the early phases of online initialization when one would expect a lot of unusual activity.

Send warnings to the journal? (Y/N)

Directs the Background Monitor to log a US line on the *Model 204* journal in addition to any online user notifications.

Users to receive warning messages (separate by blanks)

Directs the Background Monitor to send an online warning to the listed user(s) when a threshold is exceeded for the requisite number of consecutive monitoring intervals. The special user `OPR` causes the warning message to be sent to the console operator for the *Model 204* online.

`PF12` saves the Background Monitor characteristics. `PF5` causes the Background Monitor to be started in an sdaemon thread (see the *Sirius Mods Installation Guide* for information about sdaemons). If the Background Monitor is already running in an sdaemon thread, `PF5` bumps the previously running Background Monitor and starts a new occurrence.

SirMon provides a *Model 204* command level interface for starting the Background Monitor. The following command could be inserted into the User 0 input stream or entered at a terminal to cause the *SirMon* Background Monitor to be started in an sdaemon thread:

```
SIRMON BACKGROUND
```

If the Background Monitor is already running, this command causes the existing monitor thread to be BUMPed, then a new monitor thread started, using the most recent settings entered and saved on the Background Monitor screen.

The *SirMon* Background Monitor may also be started to execute in any *Model 204* thread using the following command:

```
SIRMON SDAEMON
```

This command can be issued on a terminal thread, but the terminal will lock up the until the thread is BUMPed, since the background task does not perform any terminal I/O.

CHAPTER 8 System Monitor Menu

Option 2 from the *SirMon* main menu presents a menu of system statistics screens. This menu is also accessible by entering =2 in the command line of any *SirMon* screen.

Selecting any option from this menu brings you to a “non-scrollable” screen (see “Non-Scrollable screen format” on page 11) that displays a previously established set of statistics for the Online. PF1 displays definitions for the statistics contained in the current set.

```
--------------------------- SYSTEM Monitor Options----------------------------
==>

    U.  Update the selection menu          16.
    A.  User AD-HOC                        17.
    1.  System Performance                 18.
    2.  Database I/O Performance           19.
    3.  User State Distribution            20.
    4.  User Wait Type Dist                21.
    5.  Request Profile                    22.
    6.  MP Performance                     23.
    7.  Journal/Checkpt/Server I/O         24.
    8.  Custom Sys performance             25.
a   9.  CFRS sums                          26.
   10.                                     27.
   11.                                     28.
   12.                                     29.
   13.                                     30.
   14.                                     31.
   15.                                     32.
-------------------------------------------------------------------------------
1/Help          3/Quit
```

System Monitor menu

2.U Update the selection menu

Allows *SirMon* administrators to customize the System Monitor menu.

2.A User AD-HOC

An adhoc view of system statistics specific to each *SirMon* user.

2.1 System Performance

General view of system performance that includes CPU usage, I/O activity and other broad measures.

2.2 Database I/O Performance

Overall view of physical and logical I/O for the various data base files defined to the online environment.

2.3 User State Distribution

Measures the total number of users in the various categories of activity (running, waiting, swapping, etc.) at a given moment.

2.4 User Wait Type Dist

Displays counts of users by wait type (waiting for disk I/O, or file resource, etc.).

2.5 Request Profile

Overall view of data base activity up to the current moment. Displays total FINDs, and various measures of record access and update.

2.6 MP Performance

Measures of performance specific to a multi-processor *Model 204* environment.

As many as 26 locally defined screens may also be accessed from the System Monitor menu. These screens are defined by a *SirMon* administrator as described in “Building Custom Screens” on page 41.

CHAPTER 9 User Monitor Menu

Option 3 from the *SirMon* main menu presents a menu of user statistics screens. This menu is also accessible by entering =3 in the command line of any *SirMon* screen.

Selecting any option from this menu transfers the user into a “scrollable screen” (see “Scrollable screen format” on page 12) displaying specific statistics for all users in an Online system. PF1 displays definitions for the presented statistics.

```
---------------------------- USER Monitor Options-----------------------------
==>

    U.  Update the selection menu          16.
    A.  User AD-HOC                        17.
    1.  Resource Usage                     18.
    2.  User State Display                 19.
    3.  Resource Usage and Subsys          20.
    4.  Disk Buffer Usage                  21.
    5.  Misc. Resource Usage               22.
    6.  Record Locking Table Usage         23.
    7.  Critical File Resources            24.
    8.  Performance and procedures         25.
    9.  Procedure waits                    26.
   10.  Big Display                        27.
   11.  Big Display II                     28.
   12.  Big Display III                    29.
   13.  Test 17                            30.
u  14.  Who's waiting for whom             31.
   15.                                     32.
--------------------------------------------------------------------------------
1/Help          3/Quit
```

User Monitor menu

3.U Update the selection menu

Allows *SirMon* administrators to customize the User Monitor menu.

3.A User AD-HOC

An adhoc view of user statistics specific to each *SirMon* user.

3.1 Resource Usage

Broad measurements of users' consumption of CPU and I/O activity.

3.2 User State Display

Displays users state, wait type and other measures to indicate their level of activity.

3.3 Resource Usage and Subsys

Various resource consumption statistics and the current subsystem for each user.

3.4 Disk Buffer Usage
Various DKxxx statistics for each user.

3.5 Misc. Resource Usage
Aggregate measures of activity, making it easy to spot significant resource consumers.

3.6 Record Locking Table Usage
Statistics useful in determining utilization of the record locking table and highlighting poor enqueueing behaviour in applications.

3.7 Critical File Resources
Detailed statistics providing information about conflicts on critical file resources.

Up to 25 locally defined screens may also be accessed from the User Monitor menu. These screens are defined by a *SirMon* administrator as described in "Building Custom Screens" on page 41.

A number of special commands allow screen positioning and selection when viewing user statistics.

NO xxxxx Positions the screen at the specified user number.

ACCOUNT xxxxxxx
xxxxxxxx is any valid wildcard string. This restricts the display to users with account ids that match the specified pattern. For example,

```
ACCOUNT AB*
```

limits the display to account ids that begin with the letters "AB".

CHKP Restricts the display to users that have an inflight updating transaction, hence preventing checkpoints. A checkpoint does not have to be in progress for this option to perform the indicated restriction, but if nobody is holding an open updating transaction, the display will be empty.

FILE xxxxxxxx Restricts the display to users that have file xxxxxxxx open. Wildcards may not be used in filename.

IODEV xxx Restricts the display to users connected to the *Model 204* online via the specified IO device type. Wildcards are not allowed in the IODEV specification.

PNAME xxxxxxxx This restricts the display to users currently running any procedure whose name matches the specified pattern. For example,

```
PNAME *MENU
```

limits the display to users running any procedure whose name ends with the letters “MENU”.

SUBSYS xxxxxxxx This restricts the display to users in any subsystem that matches the specified pattern. For example

```
SUBSYS TEST*
```

limits the display to users in any subsystem that begins with the letters “TEST”.

TERMID xxxxxxx This restricts the display to users with terminal ids that match the specified pattern. For example,

```
TERMID VT*
```

limits the display to terminal ids that begin with the letters “VT”.

USER xxxxxxxx This restricts the display to user ids that match the specified pattern. For example,

```
USER PROC*
```

limits the display to user ids that begin with the letters “PROC”.

WHAT xxxx This restricts the display to users whose WHAT statistic matches the specified pattern. For example,

```
WHAT EV*
```

limits the display to users with WHAT statistics that begin with the letters “EV”, hence only EVAL users would be shown.

ALL ALL removes any restriction on the display. The display is returned to viewing all users.

All User Monitor screens give the option of 'ZOOMING' (PF6) or obtaining a detail view (PF10) on an individual user. The cursor must be on a valid 'user' line to determine the user for which ZOOM or DETAIL statistics are required.

ZOOM presents a non-scrollable (refer to “Non-Scrollable screen format” on page 11) screen displaying the same statistics that were displayed on the original screen, but with screen lines representing time-sliced views of the selected user's performance.

DETAIL presents a display of most of the important statistics that can be displayed for any single user:

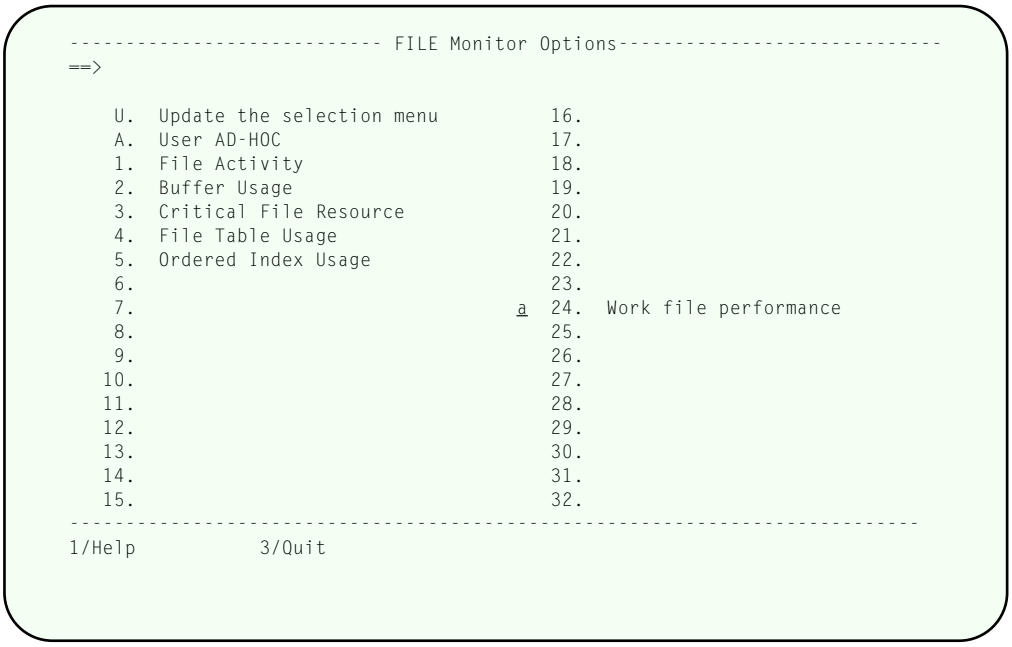
```
------------ USER --- ULSPF500/4.1.1E/CMS ------------ INTERVAL: 6.57 SEC---
===> _
   NO USERID   ACCOUNT    TERMID   SUBSYS     PFILE    PROCNAME           REQ
    6 HOMER    HOMER      ALEX3               ALEXPROC CFTEST               0
  CNCT   WHAT  SVSIZE SVSIZEC WAITTIM WAITTYP              WAITFIL  STAT PRTY
00:03:51 EVAL  233828       0    0.40 12-Wakeup                     WTSV   48


        CPU   STCPU    SVIO    SQRD    DKRD    DKWR  CFRWTT   AUDIT     REQ
SEC   0.016    0.00    2.74    0.00    0.00    0.00  161.02    0.00    0.00
TOT      25       0     513      16       4       2   29472      22       0

       FINDS   RECDS  DIRRCD   SORTS STRECDS  RECADD  RECDEL   IXADD   IXDEL
SEC     0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
TOT        0       0       0       0       0       0       0       0       0

        BADD    BCHG    BDEL  BXCHNG  BXDELE  BXFIND  BXINSE  BXNEXT  BXRFND
SEC     0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
TOT        0       0       0       0       0       0       0       0       0

--------------------------------------------------------------------------------
1/HELP                3/QUIT
```

User Detail screen

PF3 from a ZOOM or DETAIL screen returns the user to the original User Monitor screen.

CHAPTER 10 File Monitor Menu

Option 4 from the main menu presents a menu of file statistics screens. This menu is also accessible by entering =4 in the command line of any *SirMon* screen. Selecting any option from this menu transfers the user into a “scrollable screen” (see “Scrollable screen format” on page 12) displaying specific statistics for all open files in an Online system. PF1 displays definitions for the presented statistics.



File Monitor menu

4.U Update the selection menu

Allows *SirMon* administrators to customize the File Monitor menu.

4.A User AD-HOC

An adhoc view of file statistics specific to each *SirMon* user.

4.1 File Activity

Display of disk activity, file enqueue counts, total page buffer utilization, and critical file resource conflicts.

4.2 Buffer Usage

Detailed breakdown of each file's disk buffer usage by table together with disk read and write rates.

4.3 Critical File Resource
Shows each category of resource conflict as a rate and the total number if users waiting on various critical file resources.

4.4 File Table Usage
Shows file space utilization information for each open *Model 204* file, broken down by table type.

4.5 Ordered Index Usage
Information about ordered index data density and usage.

As many as 27 locally defined screens may also be accessed from the File Monitor menu. These screens are defined by a *SirMon* administrator as described in "Building Custom Screens" on page 41.

A number of special commands allow limiting the view of selected files.

FILE xxxxxxxx Restricts the display to files that match the pattern specified in xxxxxxxx. For example

```
FILE GLB*
```

limits the display of files to only those whose names begin with "GLB".

USER xxxx Restricts the display to files that are open by the user number specified. Wildcards are not allowed with this command.

SUBSYS xxxxxxxx Restricts the display to files that are open by the subsystem specified in xxxxxxxxxx. Wildcards are not allowed in subsystem specification.

ALL The command ALL removes any restrictions on the display. The display returns to showing all files.

All File Monitor screens give the option of "ZOOMING" (PF6) or obtaining a detail view (PF10) on an individual file. The cursor must be positioned over a line of file statistics to determine the file for which ZOOM or DETAIL statistics are required.

- ZOOM presents a non-scrollable screen (refer to "Non-Scrollable screen format" on page 11) with the same statistics as were presented on the original screen, but with screen lines representing time-sliced views of the selected file's performance.
- DETAIL presents a display of most of the important statistics that can be displayed for any single file:

```
------------ FILE --- ULSPF500/4.1.1E/CMS ----------- INTERVAL: 326570.15 SEC
===> _
FILENAME  ENQSHR  ENQEXC    NREQ    NUPD BUFPAGE CFRQUEU  FISTAT  FRCVOPT
SIRXREFD       0       4       3       0     526       0       0        0
   ASIZE   BSIZE   CSIZE   DSIZE FREESIZ NRECMAS NRECEXT    FOPT  FILEORG
       3    6300     200    2340    3749  262458     890       0       24
  RETRYA  BFULLP  RETRYC  DFULLP
       0   58.98       0   30.17

       DKRD    DKWR  DIRRCD  DUPDTS     REQ CFRCONF
SEC    0.02    0.00    3.21    0.00    0.00    0.00
TOT    7412       2 1049828       0       5       0

     RECADD  RECDEL   IXADD   IXDEL    BADD    BCHG    BDEL
SEC    0.00    0.00    0.00    0.00    0.00    0.00    0.00
TOT       0       0       0       0       0       0       0

     BXCHNG  BXDELE  BXNEXT  BXFIND  BXINSE  BXSPLI  BXRFND  BXFREE
SEC    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
TOT       0       0       0       0       0       0       0       0
--------------------------------------------------------------------------------
1/Help                3/Quit
```

File Detail screen

PF3 from a ZOOM or DETAIL screen returns the original File Monitor screen.

CHAPTER 11 *Subsystem Monitor Menu*

Option 5 from the main menu presents a menu of subsystem statistics screens. This menu is also accessible by entering =5 in the command line of any *SirMon* screen.

Selecting any option from this menu brings you to a "scrollable" screen (see "Scrollable screen format" on page 12) displaying specific statistics for all defined or active subsystems in an Online system. PF1 displays explanatory text for the given statistics.

```
------------------------- SUBSYSTEM Monitor Options-------------------------
==> _

    U.  Update the selection menu          16.
    A.  User AD-HOC                        17.
    1.  Active/Inactive Subsystems         18.
    2.  Resident QTBL Usage                19.
    3.  Subsys list                        20.
    4.  Subsys procedure utilization       21.
    5.                                     22.
    6.                                     23.
    7.                                     24.
    8.                                     25.
    9.                                     26.
   10.                                     27.
   11.                                     28.
   12.                                     29.
   13.                                     30.
   14.                                     31.
   15.                                     32.
------------------------------------------------------------------------------
1/Help          3/Quit
```

Subsystem Monitor menu

5.U Update the selection menu

Allows *SirMon* administrators to customize the Subsystem Monitor menu.

5.A User AD-HOC

An adhoc view of subsystem statistics specific to each *SirMon* user.

5.1 Active/Inactive Subsystems

Display of status, number of users, access (PRIVATE, PUBLIC, SEMIPUBLIC), non-precompiled prefix and precompiled prefix for all subsystems defined in the Online. This is the only Subsystem Monitor screen from which subsystems may be STARTed or STOPped.

5.2 Resident QTBL Usage

Detailed breakdown of key information about each subsystem's use of resident QTBL.

As many as 30 locally defined screens may also be accessed from the Subsystem Monitor menu. These screens are defined by a *SirMon* administrator as described in "Building Custom Screens" on page 41.

The displayed list of subsystems can be limited with the following commands.

FILE xxxxxxxx Limits the display to subsystems that have the specified file open. Wildcards are not allowed in the file specification.

SUBSYS xxxxxxxx Limits the display to subsystem names that match the specified wildcard string. For example, `SUBSYS SIR*` limits the display to only those subsystems that begin with the letters "SIR".

ALL Removes any restrictions on the subsystem display. All subsystems are presented.

All Subsystem Monitor screens give the option of "ZOOMING" (PF6) or obtaining a detail view (PF10) on an individual subsystem. To determine the subsystem for which ZOOM or DETAIL statistics are required, the cursor must be on a valid 'subsystem' line.

- ZOOM presents a non-scrollable screen (refer to "Non-Scrollable screen format" on page 11) of the same statistics as were presented on the original screen, but screen lines represent time-sliced views of the selected subsystem's performance.

- DETAIL presents a display of most of the important statistics and information that can be displayed for any single subsystem:

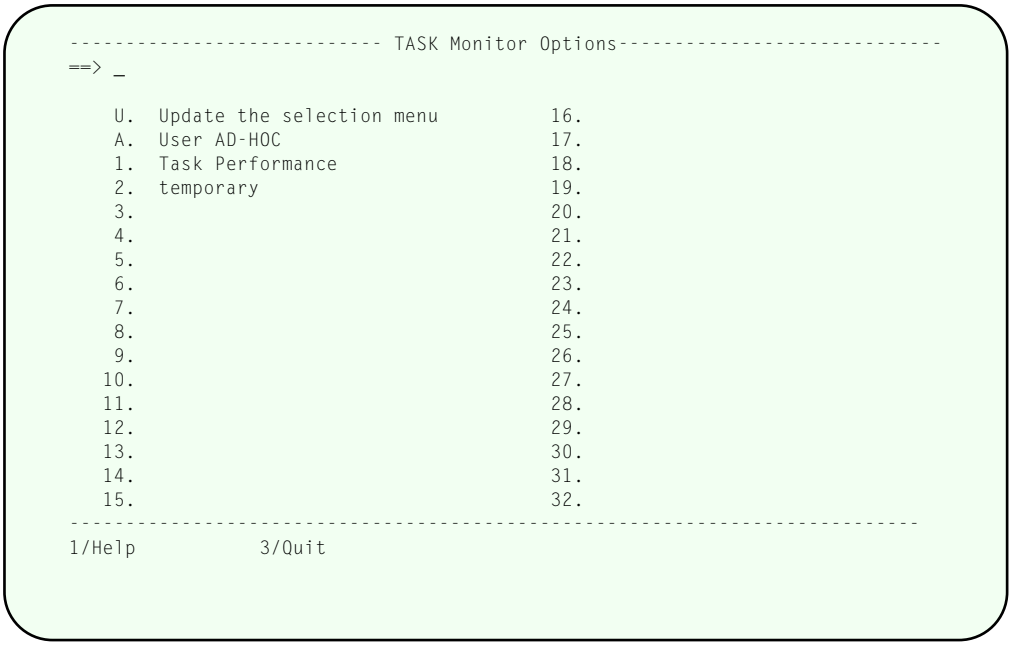
```
--------- SUBSYSTEM --- ULSPF500/4.1.1E/CMS --------- INTERVAL: 2.11 SEC---
===> _

 SUBSYSNAME  STATUS    NUSER  PROCFG PROCFIL    NFILEG    NUMLK
 SIREDIT    ACTIVE         0   GROUP DEVSIR          4        3

 PRCSVWR PRCPSVW  PRCRES PRCRESB PRCRESE RESEVAL RESSWCH
      54      54       1   32768       0      80      80
 PRCNPRE  PRCPRE PRCSAVE
      11      17      14

  PREFIXN     PREFIXP     ERRPROC       INIPROC       LOGPROC
 PUNP-       PUPR-       PUNP-ERROR    PUNP-INIT     PUNP-START
  CMDLVAR     COMMVAR     ERRVAR        EXITVAL
 COM         MKIPROC     ERROR         LOGGED-OUT

  ACCESS   ACCOUNT    MAXITER  MSGCTL   NSCLASS
 SEMIPUB                    0       6         2


-------------------------------------------------------------------------------
1/HELP                3/QUIT
```

Subsystem Detail screen

PF3 from a ZOOM or DETAIL screen returns the original Subsystem Monitor screen.

CHAPTER 12 Task Monitor Menu

Option 6 from the main menu presents a menu of task statistics screens. This menu is also accessible by entering =6 in the command line of any *SirMon* screen. Selecting any option from this menu transfers the user into a "scrollable" screen (see "Scrollable screen format" on page 12) displaying specific statistics for all tasks in an Online system. If a site does not use the MP/204 feature of *Model 204*, then only information for "task 0" (the main task) is displayed. PF1 displays definitions for the presented statistics.



Task Monitor menu

6.U Update the selection menu

Allows *SirMon* administrators to customize the Task Monitor menu.

6.A User AD-HOC

An adhoc view of task statistics specific to each *SirMon* user.

6.1 Task Performance

Display of CPU usage, the PCPU statistic, and other statistics related to performance of *Model 204* multitasking.

AS many as 31 locally defined screens may also be accessed from the Task Monitor menu. These screens are defined by a *SirMon* administrator, as described in "Building Custom Screens" on page 41.

All Task Monitor screens give the option of 'ZOOMING' (PF6) on an individual task. The cursor must be on a valid “task” line to determine the task for which a ZOOM display is requested. ZOOM presents a non-scrollable screen (see “Non-Scrollable screen format” on page 11) with the same statistics as were presented on the original screen, but screen lines represent time-sliced views of the selected task's performance.

There is no DETAIL data available in the Task Monitor. PF3 from a ZOOM screen returns the user to the original Task Monitor screen.

CHAPTER 13 Building Custom Screens

Option U on each of the system, user, file, subsystem, and task monitor menus allows a *SirMon* administrator to define and maintain custom monitor screens. Once defined, custom screens appear on the appropriate menu exactly as the pre-defined screens supplied with *SirMon* and they support the same prefix and command-line commands. Option A allows each user to create their own private "adhoc" screen within each category, which will be saved between *SirMon* sessions.

When Option U is selected on either the System, User, File, Subsystem or Task menu, a panel is presented that displays all the screens currently available from the appropriate menu. For example, `SIRMON 3.U` would produce:

```
---------------------------- USER Monitor Options-----------------------------
==>

    U.  Update the selection menu          16.
    A.  User AD-HOC                        17.
    1.  Resource Usage                     18.
    2.  User State Display                 19.
    3.  Resource Usage and Subsys          20.
    4.  Disk Buffer Usage                  21.
    5.  Misc. Resource Usage               22.
    6.  Record Locking Table Usage         23.
    7.  Critical File Resources            24.
    8.  Performance and procedures         25.
    9.  Procedure waits                    26.
   10.  Big Display                     A  27.  Btree usage / procedure
   11.  Big Display II                    28.
   12.  Big Display III                   29.
   13.  Test 17                           30.
   14.  Who's waiting for whom            31.
   15.                                    32.
--------------------------------------------------------------------------------
1/Help          3/Quit
```

Menu Customization screen

Each display line has two input areas. The two-character input area to the left of each menu selection number is used to indicate an action that should be taken. The input area to the right of the menu selection number allows you to maintain a descriptive name for the custom screen. The input areas associated with the pre-defined screens provided with *SirMon* are protected, preventing modifications. Only one administrator at a time may modify a particular menu.

The following action commands can be placed in the first input area for a menu screen:

A indicates that you are adding a new entry to the menu. You must provide a name for the entry in the input area to the right of the item number. You may only enter

an A on a line that does not have an existing menu definition. When you press ENTER you will advance to the parameter selection screen.

C indicates that you want to change an existing menu entry. You may only enter a C on a line that already contains a menu entry. C indicates that you intend to update the list of selected parameters. When you press ENTER you will advance to the parameter selection screen.

D indicates that you want to delete an existing menu entry. You may only enter D on a line that has an existing menu entry defined. When you press ENTER the menu entry will be deleted from the menu and its parameters will be discarded.

U indicates that you want to change the descriptive text of the indicated menu entry, without changing the contents of its displayed screen. Enter U in the input area, type over the existing descriptive text and press ENTER. The new name will then be available.

nn indicates that you want to move the indicated menu entry to a different location on the menu. The number you enter is the desired new location for the current menu entry.

If you are moving an entry “up,” all entries from the target value (nn) to just before the current entry will be moved down one. If you are moving an entry “down”, all entries starting one past the current entry and ending at the target value (nn) will be moved up one.

You may update only one line at a time, and you cannot change the position of any pre-define *SirMon* screens.

The customized menu will not contain any imbedded blank entries. When an entry is deleted from the middle of the menu, subsequent entries will move up one position.

13.1 Selecting items for custom panels

The parameter selection screen provides the list of statistics available for that selected view (system, user, file, subsystem or task). From our current example, the user statistics parameter selection screen will be displayed:

```
------------ Select USER statistics for "Btree usage / procedure" -------------
===> _

 1 ==> DKIO          2 ==> BXNEXT        3 ==> BXFIND          4 ==> BXRFND
 5 ==> DKPR          6 ==> PNAME21L      7 ==>                 8 ==>
 9 ==>              10 ==>               11 ==>                12 ==>
13 ==>              14 ==>               15 ==>                16 ==>
--------------------------------------------------------------------------------
ACCOUNT   AUDIT     BADD      BCHG      BDEL      BLKI      BLKO      BXCHNG
BXDELE    BXFIND    BXFREE    BXINSE    BXNEXT    BXRFND    BXSPLI    CFRWTT
CFRCONF   CFRDIER   CNCT      CPU       DIRRCD    DKAR      DKIO      DKPR
DKRD      DKRR      DKWR      DMPRST    DUMP      FBWT      FINDS     FLGS
FSCB      FSCBB     FTBL      FTBLB     GTBL      GTBLB     HEAP      IDLETIM
IFCALL    IFJOB     IFSTART   IFSTEP    IODEV     ITBL      ITBLB     IXADD
IXDEL     MOVE      NTBL      NTBLB     OTBL      OTBLB     OUTPB     OUTPBB
PBRSFLT   PBUFRSV   PBUFUSE   PCPU      PCPUC     PCPUR     PDL       PDLB
PFILE     PNAME     PRTY      QUEUTIM   QTBL      QTBLB     RCLKBYT   RCLKPAG
RCLKPL    RCLKPLE   RCLKPLS   RCLKSL    RCLKSLE   RCLKSLS   RCLKSRE   RECADD
RECDEL    RECDS     REDY      REQ       RESPTIM   REST      RUNG      SCHDCPU
SCREENS   SGMTI     SGMTO     SLBADD    SLBCHG    SLBDEL    SLBXCHG   SLBXDEL
--------------------------------------------------------------------------------
1/Help        2/Preview       3/Quit
7/Up          8/Down          9/Repeat                11/Detail      12/Save
```

Custom Parameter Selection screen

Statistics are selected by typing their names into the labeled input areas in the upper portion of the screen. PF11 toggles the display of selectable statistics between a simple list of statistic names and a list of statistics with associated descriptions.

```
------------ Select USER statistics for "Btree usage / procedure" -------------
===> _

 1 ==> DKIO          2 ==> BXNEXT        3 ==> BXFIND          4 ==> BXRFND
 5 ==> DKPR          6 ==> PNAME21L      7 ==> wt              8 ==> flgs
 9 ==>              10 ==>               11 ==>                12 ==>
13 ==>              14 ==>               15 ==>                16 ==>
--------------------------------------------------------------------------------
 FLGS     The bits in the flag byte have the following meaning :
             80 - Always enter scheduler even if ECB posted
             40 - The wait is swappable
             20 - The ECB waited on is an internal ECB (posted only by 204)
             10 - The ECB waited on is a short (single byte) internal ECB
             08 - The ECB waited on can be waited on by more than one thread
             04 - The wait is BUMP'able (the wait will complete upon a BUMP)
             02 - The wait will complete upon receipt of a warning
             01 - The wait has a time limit
 FSCB     High water mark for size of the full screen buffer table in the
          user's server.
 FSCBB    High water mark for size in bytes of the full screen buffer
--------------------------------------------------------------------------------
1/Help        2/Preview       3/Quit
7/Up          8/Down          9/Repeat                11/No Detail   12/Save
```

Custom Parameter Selection screen with descriptions

The custom screen can be previewed at any time with PF2. The custom screen definition can be saved with PF12.

The screen allows up to 16 statistics to be added to any screen definition. When the screen is invoked, *SirMon* examines the type of the current user's terminal to see how many of the statistics will fit on the physical screen, and limits the display accordingly. Model 5 3270 displays, for instance, can display up to 132 characters across the screen. If the last statistic defined for a screen is procedure name (PNAME), *SirMon* will fit as much of the names as it can on the screen, truncating the name if necessary.

The *SirMon* help facility is automatically generated for a custom screen, including descriptions of each displayed statistic.

With a few exceptions, viewable statistics fall into five categories: literal values (like procedure and file names), percentages (such as BFULLP), rates, totals, or differences. Most statistics viewable as rates can also be viewed as totals. Statistics that can be viewed as either a rate or a total default in *SirMon* to rate displays.

To specify that a statistic should be presented as a total in a custom screen, you append a number sign (#) to the statistic name (for example, DKIO#). *SirMon* will warn the user if the statistic cannot be displayed as a total and will not allow the screen to be previewed or saved.

A statistic may be specified as both a rate and a total on the same screen. For example, a file statistics screen could be defined that presents MSTRADD (records added to table B master areas) as both a rate and a total. Users of the screen would see both total MSTRADDs and the rate of change for MSTRADD in all displayed files at each interval refresh.

CHAPTER 14 Monitoring Critical File Resources

Model 204 defines four “critical file resources”, which are used to serialize access to important file structures. The names of these resources and the resources that they control are:

DIRECT controls access to Table B records.

INDEX controls access to index structures in both Table C and Table D.

EXISTS controls access to the existence bit-map.

RECENQ controls access to record enqueueing data structures representing found sets and record lists.

A set of internal rules govern access to critical file resources: A thread must hold a resource in SHR mode to examine the associated file structure. A thread must hold a resource in EXC mode to modify the associated file structure. Multiple threads may hold a resource in SHR mode but only a single thread may hold a resource in EXC mode. A resource may not be held in SHR and EXC modes simultaneously. A thread may hold any number of resources for a single file but will never hold resources in more than one file at a time.

When a thread is prevented by the above rules from obtaining a required resource, the thread must wait until the resource becomes available: this is called a critical file resource “conflict.” In this situation, the requesting thread is placed on a queue of users waiting for the resource. The thread is said to be “enqueued” on the critical file resource.

SirMon supplies you with a variety of statistics for viewing queues and conflicts that have formed against critical file resources, and it supplies a special screen to help monitor critical file resource conflicts while they are happening:

```
---------- CFRS --- ULSPFPRO/4.1.1E/CMS ------------ INTERVAL: 9.52 SEC---
===> _
FILE:      BUFPAGE CFRCDIR CFRCIND CFRCEXS CFRCREC    DKRD
ALEXPROC         9    0.20    0.10    0.00    0.00    0.00
           CFRQUEU CFRQDIR CFRQIND CFRQEXS CFRQREC    DKWR
                 0       0       0       0       0    0.00

     NO USERID     HDDIRCT HDINDEX HDEXIST HDRECNQ WT  WTIME         PNAME
--------------------------------------------------------------------------------
       7 MARGE          SHR             SHR         12   0.39 CFTEST
       6 HOMER          SHR     EXC                 12   0.60 CFTEST
       8 LISA           SHR                         12   0.17 CFTEST









--------------------------------------------------------------------------------
1/HELP                 3/QUIT
7/UP       8/DOWN      9/REPEAT  10/DETAIL                        12/REFRESH
```

Critical File Resource Conflict display

This display is accessed from any file monitor screen in *SirMon* (including custom user-defined screens) by pressing PF2 with the cursor on a line containing file statistics.

The top section of the CFRS screen displays a variety of file-related statistics (described in “Critical File Resource statistics definitions” on page 139) showing the rate of conflicts and the current length of the queue of users waiting for each of the four critical file resources. Disk reads and writes (DKRD/DKWR) are also displayed, as are the total number of the file's pages currently in buffers (BUFPAGE) and the total number of users queued, waiting for any critical file resource for the file.

The lower portion of the screen displays users who currently hold enqueues on critical file resources for the selected file, and the type of enqueue each is holding. In addition, WT (WAITTYPE), WTIME (the length of time the user has been waiting) and PNAME (the procedure being run by the user) is displayed for each user.

WT is a numeric code used by *Model 204* to indicate the type of wait a user is experiencing. WAITTYPEs 24 and 25 indicate a wait on a critical file resource. *SirMon* displays the WT statistic as a two-digit code, ordinarily the numeric wait type. However, codes 24 and 25 are displayed as two alphabetic characters. The first character indicates the particular critical file resource being waited on, as follows:

D DIRECT
I INDEX
E EXISTS
R RECENQ

The second character indicates the strength of enqueue being sought:

E Exclusive
S Share

For example, a WT value of DS indicates that the DIRECT resource is required in share mode, while a WT value of RE indicates that the RECENQ resource is required in exclusive mode. This translation of WAITTYPEs is vital in determining the root cause of a critical file resource enqueuing problem.

If a user is waiting for a critical file resource, the user that currently holds the requested critical file resource should be investigated. For example, if a user has a WT value of IS you should find another user holding the INDEX resource in exclusive mode. Whatever this second user is waiting upon is generally the root cause of the first user's IS wait.

Along with statistics displayed on this special critical file resource screen, there are quite a number of other statistics, at the System, File and User levels, that are related to critical file resource monitoring. An understanding of how these statistics relate to critical file resources is key to effectively identifying and fixing related problems.

CFRCONF & CFRQUEU exist on system and file levels. These statistics are the sums of the resource type queue lengths and number of conflicts occurring. CFRCONF is provided to flag situations where a critical file resource is being obtained and released relatively frequently, often producing short lived conflicts. This situation could produce unnecessarily high CPU utilization because of extra scheduler overhead. Two updating “batch” type jobs could produce this kind of problem. CFRQUEU is provided to flag situations where an application holds a critical file resource for excessive periods of time producing long queues of users waiting for the resource.

CFRCONF exists on the user level, and at this level it indicates the number of times a user thread has had to wait on a critical file resource. Also on the user level, CFRCWTT indicates the amount of time a user has waited on critical file resources.

The WAITFIL statistic indicates the name of the file being waited on, and is reported for both critical file resource waits and disk I/O.

The WAITCFR statistic indicates the abbreviated name of the critical file resource being waited on, and is only reported for critical file resource waits.

Critical file resource conflicts and enqueuing problems are always a second-order effect indicating some other bottleneck. For instance, long queues of users or high numbers of conflicts on the resource called INDEX might point to an inefficient user language program that is unnecessarily locking up a file's index pages.

Note also that users waiting in queues, but not holding enqueues on critical file resources are not displayed here. They can be seen in User Monitor displays showing WAITTYP and WAITTIM.

CHAPTER 15 User-Initiated Capturing of Statistics

SirMon includes a feature for capturing statistics into a database file at user-specified intervals. The statistics captured are the same as those displayed on the System Overview Screen ("System Overview Screen" on page 19).

Although *SirMon* does not handle presentation of the captured statistics, you can write external programs to extract and display these numbers, and Technical Support can also provide sample programs (including Janus Web-based programs that allow the captured statistics to be downloaded into a spreadsheet or displayed as vector graphics over time).

To verify that your site has the *SirMon* Capture capability, check for the existence of procedure MOPR-CAPTURE in the SIRIUS or SIRMON file.

Here is how the *SirMon* Capture works:

1. The optional file, MONDATA, must be allocated to the SIRMON application subsystem. MONDATA should have at least 1000 pages of Table B and 200 pages of Table D.

   Field definitions are:

   ```
   IN FILE MONDATA DEFILE FIELD INTERVAL
   IN FILE MONDATA DEFILE FIELD SAMPLE   (ORD CHAR)
   IN FILE MONDATA DEFILE FIELD STAT
   IN FILE MONDATA DEFILE FIELD TIME
   IN FILE MONDATA DEFILE FIELD TYPE     (ORD CHAR)
   ```

2. To initiate captures, execute this command:

   ```
   SIRMON CAPTURE int samples
   ```

   where:

   - *int* is the number of seconds between samples (60 seconds minimum)
   - *samples* is the number of samples to take (1440 maximum)

   The SIRMON CAPTURE command will lock up the thread it is executed on, so the sensible thing to do is either insert the command into a BATCH2 job, or execute the command in an sdaemon. Here is a sample program that uses an sdaemon to run the command:

```
Begin
  %s is float
  %s  = $ListNew
  Call $ListAdd( %s, 'SIRMON CAPTURE 60 600')
  Call $CommBG(%s)
  Call $ListDel(%s)
End
```

In the above example, *SirMon* would capture the System Overview statistics every 60 seconds for 10 hours.

3. The captured data is stored as a single “TYPE=H” header record and a set of “TYPE=S” stat records. The header and stat records are linked together by matching starting-time values in the “SAMPLE” field.

   The header record specifies the length of the intervals between samples, as well as the names of the individual statistics (as values of a STAT field). The stat records each have a time stamp (so they can be sorted in order by capture starting time), and they contain the captured value of each statistic (as a STAT field value) in the same order as listed in the header record.

   An example of a header record is followed by an example of a stat record:

```
 TYPE = H
SAMPLE = 3291966206
INTERVAL = 120
TIME = 3291966206
STAT = RESPMED
STAT = RESP90
STAT = RESPAVG
STAT = VTAMBW
STAT = RSXCOMP
 ...

 TYPE = S
SAMPLE = 3291966206
TIME = 3291966206
STAT = 0.00
STAT = 0.00
STAT = 0.00
STAT = 0
STAT = 0
STAT = 0.38
STAT = 3.86
STAT = 16.05
 ...
```

   The TIME field on each S record displays the actual time of the sample, while the SAMPLE field remains the same, allowing the records within a sample to be selected as a set.

APPENDIX A System statistics definitions

System statistics provide information about overall performance and status of the Online system. Some identically named statistics might also be available on user, file, subsystem or task level. Generally, an identically named statistic for a different context will have a similar meaning to the system context.

APSYLD APSY loads (rate or total).

APSYLDD APSY loads from dataspace (rate or total).

AUDIT Audit lines written (rate or total).

BACKOUTS Number of backed out update units (rate or total).

BADD Fields added to table B (rate or total).

BCHG Fields changed in place in table B (rate or total).

BDEL Fields deleted from table B (rate or total).

BLKI Performance statistic: Average number of users in a server and waiting for an event to occur. Taken from latest report printed by the performance subtask. BLKI includes PST activity.

BLKIA Performance statistic: same as BLKI but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

BLKIT Performance statistic: same as BLKI but calculated across all performance monitoring samples since the beginning of the run.

BLKO Performance statistic: Average number of users swapped out and waiting for an event to occur. Taken from latest report printed by the performance subtask.

BLKOA Performance statistic: same as BLKO but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

BLKOT Performance statistic: same as BLKO but calculated across all performance monitoring samples since the beginning of the run.

BUFF. Total number of pages in the disk buffer pool currently occupied by pages from all tables in all database files. Equal to BUFFF + BUFFA + BUFFB + BUFFC + BUFFD + BUFFE + BUFFX + BUFFT.

BUFF.G Total number of above-the-bar pages in the disk buffer pool occupied by pages from all tables in all database files. Equal to BUFFFG + BUFFAG + BUFFBG + BUFFCG + BUFFDG + BUFFEG + BUFFXG + BUFFTG. Above-the-bar buffers reside at virtual addresses above two gigabytes and are only used when the NUMBUFG parameter is set to a non-zero value under Model 204 V6R2 or later.

BUFF.L Total number of below-the-bar pages in the disk buffer pool occupied by pages from all tables in all database files. Equal to BUFFFL + BUFFAL + BUFFBL + BUFFCL + BUFFDL + BUFFEL + BUFFXL + BUFFTL. Below-the-bar buffers reside at virtual addresses below two gigabytes. BUFF.L has the same value as BUFF. unless the NUMBUFG parameter is set to a non-zero value under Model 204 V6R2 or later.

BUFFA Total number of pages in the disk buffer pool currently occupied by table A pages from all database files.

BUFFAG Total number of above-the-bar pages in the disk buffer pool currently occupied by table A pages from all database files.

BUFFAL Total number of below-the-bar pages in the disk buffer pool currently occupied by table A pages from all database files.

BUFFB Total number of pages in the disk buffer pool currently occupied by table B pages from all database files.

BUFFBG Total number of above-the-bar pages in the disk buffer pool currently occupied by table B pages from all database files.

BUFFBL Total number of below-the-bar pages in the disk buffer pool currently occupied by table B pages from all database files.

BUFFC Total number of pages in the disk buffer pool currently occupied by table C pages from all database files.

BUFFCG Total number of above-the-bar pages in the disk buffer pool currently occupied by table C pages from all database files.

BUFFCL Total number of below-the-bar pages in the disk buffer pool currently occupied by table C pages from all database files.

BUFFD Total number of pages in the disk buffer pool currently occupied by table D pages from all database files.

BUFFDG Total number of above-the-bar pages in the disk buffer pool currently occupied by table D pages from all database files.

BUFFDL Total number of below-the-bar pages in the disk buffer pool currently occupied by table D pages from all database files.

BUFFE Total number of pages in the disk buffer pool currently occupied by Table E pages from all database files.

BUFFEG Total number of above-the-bar pages in the disk buffer pool currently occupied by table E pages from all database files.

BUFFEL Total number of below-the-bar pages in the disk buffer pool currently occupied by table E pages from all database files.

BUFFF Total number of pages in the disk buffer pool currently occupied by FCT pages from all database files.

BUFFFG Total number of above-the-bar pages in the disk buffer pool currently occupied by FCT pages from all database files.

BUFFFL Total number of below-the-bar pages in the disk buffer pool currently occupied by FCT pages from all database files.

BUFFT Total number of pages in the disk buffer pool currently occupied by CCATEMP pages. Note that in the file buffer usage statistics, CCATEMP pages are indicated as table D.

BUFFTG Total number of above-the-bar pages in the disk buffer pool currently occupied by CCATEMP pages. Note that in the file buffer usage statistics, CCATEMP pages are indicated as table D.

BUFFTL Total number of below-the-bar pages in the disk buffer pool currently occupied by CCATEMP pages. Note that in the file buffer usage statistics, CCATEMP pages are indicated as table D.

BUFFX Total number of pages in the disk buffer pool currently occupied by Table X pages from all database files.

BUFFXG Total number of above-the-bar pages in the disk buffer pool currently occupied by table X pages from all database files.

BUFFXL Total number of below-the-bar pages in the disk buffer pool currently occupied by table X pages from all database files.

BUFM. Total number of pages in the disk buffer pool currently occupied by modified pages from all tables in all database files. Equal to BUFMF + BUFMA + BUFMB + BUFMC + BUFMD + BUFME + BUFMX.

BUFMA Total number of pages in the disk buffer pool currently occupied by modified table A pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMAG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table A pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMAL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table A pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMB Total number of pages in the disk buffer pool currently occupied by modified table A pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMBG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table B pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMBL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table B pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMC Total number of pages in the disk buffer pool currently occupied by modified table A pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMCG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table C pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMCL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table C pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMD Total number of pages in the disk buffer pool currently occupied by modified table A pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMDG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table D pages from all database files. These

pages must be written to disk before they can be flushed from the buffer pool.

BUFMDL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table D pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFME Total number of pages in the disk buffer pool currently occupied by modified table A pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMEG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table E pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMEL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table E pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMF Total number of pages in the disk buffer pool currently occupied by FCT pages from all database files. These pages must be written to to disk before they can be flushed from the buffer pool.

BUFMFG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified FCT pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMFL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified FCT pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMT Total number of pages in the disk buffer pool currently occupied by modified CCATEMP pages. These pages must be written to disk before they can be flushed from the buffer pool. Not that in the file buffer usage statistics, CCATEMP pages are indicated as table D.

BUFMTG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified CCATEMP pages. These pages must be written to disk before they can be flushed from the buffer pool. Note that in the file usage statistics, CCATEMP pages are indicated as table D.

BUFMTL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified CCATEMP pages. These pages must be written to disk before they can be flushed from the buffer pool. Note that in the file usage statistics, CCATEMP pages are indicated as table D.

BUFMX Total number of pages in the disk buffer pool currently occupied by modified table X pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMXG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table E pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMXL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table E pages from all database files. These pages must be written to disk before they can be flushed from the buffer pool.

BUFPAGA Total number of pages in the disk buffer pool currently occupied by table A pages from all database files.

BUFPAGB Total number of pages in the disk buffer pool currently occupied by table B pages from all database files except CCATEMP. CCATEMP table B pages are counted under BUFPAGX.

BUFPAGC Total number of pages in the disk buffer pool currently occupied by table C pages from all database files.

BUFPAGD Total number of pages in the disk buffer pool currently occupied by table D pages from all database files.

BUFPAGE Total number of pages in the disk buffer pool currently occupied by pages from all tables in all database files. Euasl to BUFPAGA + BUFPAGB + BUFPAGC + BUFPAGD + BUFPAGF + BUFPAGX plus the number of table X pages in the buffer pool which can be obtained via the BUFFX statistic.

BUFPAGF Total number of pages in the disk buffer pool currently occupied by FCT pages from all database files.

BUFPAGL Total number of pages in the disk buffer pool currently occupied by table E pages from all database files. The L stands for LOBs, or large objects, which is what is stored in table E.

BUFPAGX Total number of pages in the disk buffer pool currently occupied by table B pages from CCATEMP. All CCATEMP pages are considered to be in table B.

BUPD Fields added to or changed in table B (rate or total). Equal to BADD+BCHG.

CCATIO Physical CCATEMP reads and writes (rate or total). Equal to CCATRD+CCATWR.

CCATLHP High water mark for percent of "low" CCATEMP pages used. These are pages in the first 64K CCATEMP pages.

CCATLHU High water mark of number of "low" CCATEMP pages used. These are pages in the first 64K CCATEMP pages.

CCATMHP High water mark for percent of CCATEMP pages in use.

CCATMHU High water mark for total number of CCATEMP pages in use.

CCATMLP The current percentage of "low" CCATEMP pages used. These are pages in the first 64K CCATEMP pages.

CCATMLU The current number of "low" CCATEMP pages used. These are pages in the first 64K CCATEMP pages.

CCATMPP Percent of CCATEMP pages in use.

CCATMPT Total number of CCATEMP pages.

CCATMPU Total number of CCATEMP pages in use.

CCATMXP The current percentage of "extended" CCATEMP pages used. These are pages past the first 64K CCATEMP pages.

CCATMXU The current number of "extended" CCATEMP pages used. These are pages past the first 64K CCATEMP pages.

CCATRD Physical CCATEMP page reads (rate or total).

CCATWR Physical CCATEMP page writes (rate or total).

CDLWAIT Number of constraint dependency lock waits (rate or total).

CFRCDIR Conflicts on the "DIRECT" critical file resource in all database files (rate or total). This resource protects the integrity of table B.

CFRCEXS Conflicts on the "EXISTS" critical file resource in all database files (rate or total). This resource protects the integrity of the existence bit map.

CFRCIND Conflicts on the "INDEX" critical file resource in all database files (rate or total). This resource protects the integrity of the database indexes.

CFRCONF Conflicts on all critical file resources in all database files (rate or total).

CFRCREC Conflicts on the "RECENQ" critical file resource in all database files (rate or total). This resource protects the integrity of the record enqueueing tables.

CHKPALP Percent of checkpoint dataset full given the current extent allocation. Interpreting this statistic requires some knowledge of the checkpoint dataset allocation characteristics. If the checkpoint is allocated SPACE=(CYL,10,10) and 9 cylinders are filled, CHKPALP will show 90%. If the current extent fills and another is allocated, CHKPALP will drop to around 50%.

CHKPIO Checkpoint data set writes (rate or total).

CHKPLST Number of seconds since last checkpoint.

CHKPNCK Number of checkpoints in the current checkpoint stream. Always less than or equal to CPMAX. Always displayed as total.

CHKPNUS Number of user who have enqueued (preventing) checkpoints.

CHKPREC Number of records written to the checkpoint dataset since the last rewind of the dataset. Always displayed as total.

CHKPTO Number of checkpoint timeouts since the last successful checkpoint. Always displayed as total.

CHKPTOU The user number of the user that caused the last checkpoint to timeout (sometimes multiple users will be the cause, but this statistic will only display the last one it finds). Returns a -1 if the last checkpoint was successful.

CNCT System elapsed time. Seconds since online came up.

CNSCURP Current number of real primary constraint pages.

CNSMAXP Parameter - maximum number of constraint pages.

CNSMERG Number of constraint table merges (rate or total).

CNSMINP Parameter - minimum number of constraint pages.

CNSNWTS Number of share enqueue waits for contraints lock (rate or total).

CNSNWTX Number of exclusive enqueue waits for contraints lock (rate or total).

CNSOVFP Number of overflow constraints pages.

CNSOVFPH High water mark for number of overflow constraints pages.

CNSREO	Number of constraints table reorgs (rate or total).
CNSREOC	Number of constraints table reorg checks (rate or total).
CNSSPLT	Number of constraint splits (rate or total).
CNSTWTS	Milliseconds spent waiting on share for constraints lock (rate or total).
CNSTWTX	Milliseconds spent waiting on exclusive for constraints lock (rate or total).
COMMITS	Number of commited update units (rate or total).
CPU	CPU time consumed - stat $functions return milliseconds, SirMon displays seconds (rate or total).
DEV10	Output lines written to directed output (USE) data sets or temporary procedures (rate or total).
DEV11	Output lines to remote User Language in Full Screen mode (rate or total).
DEV12	Input lines from remote User Language in Full Screen mode (rate or total).
DEV21	Output lines to TCAM 3275s (rate or total).
DEV22	Input lines from TCAM 3275s (rate or total).
DEV23	Output lines to IFAM2 or IFAM4 programs (rate or total).
DEV24	Input arguments from certain IFAM2 or IFAM4 calls (rate or total).
DEV25	Output lines to remote BTAM 3270s (rate or total).
DEV26	Input lines from remote BTAM 3270s (rate or total).
DEV27	Terminal error messages issued for inbound Horizon conversations (rate or total).
DEV28	Not used.
DEV31	IFDISP output lines to IFAM1 programs (rate or total).
DEV32	Input arguments supplied by IFAM1 calls (rate or total).
DEV33	Output lines to TCAM 2741s and teletypes (rate or total).
DEV34	Input lines from TCAM 2741s and teletypes (rate or total).

DEV35	Output lines to BTAM 3270s (rate or total).
DEV36	Input lines from BTAM 3270s (rate or total).
DEV37	Output lines to VTAM 2741s and teletypes (rate or total).
DEV38	Input lines from VTAM 2741s and teletypes (rate or total).
DEV49	Output lines to Remote Command Line applications (rate or total).
DEV5	Output lines to to procedures defined during the run (rate or total).
DEV50	Input lines from Remote Command Line applications (rate or total).
DEV51	Not used.
DEV52	Not used.
DEV53	Output lines from an IFAM1 application (rate or total).
DEV54	Input lines from an IFAM1 application (rate or total).
DEV55	Not used.
DEV56	Not used.
DEV57	Not used.
DEV58	Not used.
DEV59	Not used.
DEV6	Input lines from procedures defined during the run (rate or total).
DEV60	Not used.
DEV61	Not used.
DEV62	Not used.
DEV63	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV64	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV65	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV66	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV67	Misused for UTI stats if X'08' bit set in MONPARM system parameter.

DEV68	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV69	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV7	Output lines to VTAM 3270s (rate or total).
DEV70	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV71	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV72	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV73	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV74	Misused for UTI stats if X'08' bit set in MONPARM system parameter.
DEV8	Input lines from VTAM 3270s (rate or total).
DEV9	Page headers or trailers defined in requests (rate or total).
DIRRCD	Number of records scanned in direct searches of table B (rate or total).
DKAR	Buffers allocated without page read request (rate or total).
DKBUFWT	Number of times a thread had to wait for a disk buffer page to become available before continuing processing (rate or total). A high number for DKBUFWT could be a sign of a too small buffer pool, problems with anticipatory write logic, or application tuning problems.
DKIO	Physical page reads/writes to/from the Model204 database file (rate or total). This value is equal to DKRD + DKWR. Under Model 204 V6R2 or later this is equal to DKIOL + DKIOG.
DKIOG	Physical page reads/writes to/from the Model204 database file to or from above-the-bar buffers (rate or total). This value is equal to DKRDG + DKWRG.
DKIOL	Physical page reads/writes to/from the Model204 database file to or from below-the-bar buffers (rate or total). This value is equal to DKRDL + DKWRL. This has the same value as DKIO unless the NUMBUFG system parameter is set to a non-zero value under Model 204 V6R2 or later.
DKPR	Requests for a page in a database file or CCATEMP (rate or total).
DKPRF	Requests for a page in a database file or CCATEMP satisfied by a pending release page, a so-called fast logical page read (rate or total).

DKRD Physical pages reads from the Model204 database file (rate or total). Under Model 204 V6R2 or later this is equal to DKRDL + DKRDG.

DKRDG Physical pages reads from the Model204 database file to above-the-bar buffers (rate or total).

DKRDL Physical pages reads from the Model204 database file to below-the-bar buffers (rate or total). This has the same value as DKRD unless the NUMBUFG system parameter is set to a non-zero value under Model 204 V6R2 or later.

DKRDPRP (DKPR - DKRD) / DKPR * 100. This is the percentage of page requests satisfied by pages already in the 204 buffer pool, and which did not require a physical I/O. Hence, this is a measure of caching efficiency. While there is no definite "good" or "bad" number for DKRDPRP, the ideal situation is to have as high a percentage as possible of page requests satisfied by pages in cache (that is, in the buffer pool).

DKRR Physical reads of database file and CCATEMP pages when the page was recently used (rate or total).

DKSAW Anticipatory disk buffer writes (rate or total).

DKSAWB Anticipatory disk buffer writes at bottom of the reuse queue (rate or total). This number will almost always be 0 or very close.

DKSAWBG Anticipatory disk buffer writes at bottom of the reuse queue (rate or total) for above-the-bar buffers. This number will almost always be 0 or very close.

DKSAWBL Anticipatory disk buffer writes at bottom of the reuse queue (rate or total) for below-the-bar buffers. This number will almost always be 0 or very close.

DKSAWC Anticipatory disk buffer writes for CCATEMP pages (rate or total). Obsolete: with 2.2 will always return a 0.

DKSAWG Anticipatory disk buffer writes (rate or total) for above-the-bar buffers. This number will be zero, unless the NUMBUFG system parameter is set to a non-zero value under Model 204 V6R2 or later.

DKSAWL Anticipatory disk buffer writes (rate or total) for below-the-bar buffers. This number will be the same as DKSAW, unless the NUMBUFG system parameter is set to a non-zero value under Model 204 V6R2 or later.

DKSAWT Anticipatory disk buffer writes at top of the reuse queue (rate or total). This number will always be 0 and is only listed for historic reasons.

DKSAWW Anticipatory disk buffer writes upon "window" entry in the reuse queue (rate or total). This number is the chief component of the DKSAW statistic and will almost always be almost exactly the same value as DKSAW.

DKSCW "COMMIT" or non-anticipatory disk buffer writes (rate or total). Equal to DKWR - DKSAW since all writes are either anticipatory writes or writes resulting from physical commits.

DKSDIR High water mark for the number of modified buffers inside the window.

DKSDIRT Total number of modified buffers inside the window.

DKSFB Calls to find a buffer (rate or total). Obsolete: under 2.2 this stat will always return 0.

DKSFBS Scans required because the oldest free buffer was not immediately available (rate or total).

DKSFNU Number of times page found in buffers not in use (rate or total).

DKSH2M "Find Buffer Scans" that crossed from the high reuse queue into the medium reuse queue (rate or total). Obsolete with 2.2.

DKSKIP High water mark of the number of free buffers that were skipped when searching for a buffer that could be reused immediately.

DKSKIPT Free buffers that were skipped when searching for a buffer that could be reused immediately (rate or total).

DKSM2L "Find Buffer Scans" that crossed from the medium reuse queue the low reuse queue (rate or total). Obsolete under 2.2

DKSRHC Number of rehashes required because of disk buffer pool hash cell collisions.

DKSRR Physical reads of database file and CCATEMP pages when the page was recently used (rate or total).

DKSTBLA Physical Table A read (rate or total).

DKSTBLB Physical Table B read (rate or total).

DKSTBLC Physical Table C read (rate or total).

DKSTBLD Physical Table D read (rate or total).

DKSTBLE Physical Table E read (rate or total).

DKSTBLF Physical Table F read (rate or total).

DKSTKQC Number of times current page closed because user had 4 open pages and needed another (rate or total).

DKSUAW Waits for oldest buffer in buffer pool to be written out (rate or total). Makes up part of DKBUFWT. Obsolete under 2.2

DKSWAIT Number of waits to reuse buffer (rate or total).

DKSWRP High water mark number of concurrent active anticipatory writes.

DKSWRPT Total number of currently active anticipatory writes.

DKWR Physical page writes to Model204 database file (rate or total). Under Model 204 V6R2 or later this is equal to DKWRL + DKWRG.

DKWRG Physical pages writes to the Model204 database file from above-the-bar buffers (rate or total).

DKWRL Physical page writes to the Model204 database file from below-the-bar buffers (rate or total). This has the same value as DKWR unless the NUMBUFG system parameter is set to a non-zero value under Model 204 V6R2 or later.

DMPRST DUMP and RESTORE I/O's (rate or total). Equal to DUMP+REST.

DNSCACHE The number of entries in the name server cache (the CACHE value on the JANUS NAMESERVER command).

DNSCURNS The current "go to" nameserver in dotted IP address format with the port number in parentheses. For example: 198.242.244.9(53).

DNSMAXTL The value of the MAXTTL parameter on the JANUS NAMESERVER command.

DNSRCACH Number of name lookup requests that found the requested name in the cache (rate or total).

DNSRFAIL Number of name lookup requests that did not succeed, i.e. did not get an IP adress (rate or total).

DNSRSUCC Number of name lookups requests that succeeded (rate or total).

DNSRTIMO Number of requests to nameservers that timed out before they got a response. With multiple nameservers, a single request can try several servers and so get several timeouts. But, of course, this is probably pretty rare in practice.

DNSRTOT	Total number of name lookup request (rate or total).
DNSWTIME	Total time spent waiting for responses from nameservers. "Interesting" calculated values might be DNSWTIME/DNSRTOT or DNSWTIME/(DNSRTOT-DNSRCACH)
DUMP	Writes to a Model204 file backup (rate or total).
ECCALL	Number of External Call Facility calls (rate or total).
ECCNCT	Total amount of time External Call Facility subtasks spent running (rate or total).
ECCPU	Total amount of CPU used by External Call Facility subtasks (rate or total).
ECCTOUT	Number of External Call Facility calls that timed out, that is did not complete in the time period specified on the EXTERNAL PROGRAM statement (rate or total).
ECCWAITP	Number of External Call Facility calls that had to wait for a load module to become available either because it was non-reentrant and it was in use or because the module was being loaded or deleted (rate or total).
ECCWAITS	Number of External Call Facility calls that had to wait for a subtask to become available (rate or total).
ECDELETE	Number of EXTERNAL DELETE statements executed (rate or total).
ECEXCP	Total number of I/O's done by External Call Facility subtasks (rate or total).
ECLOAD	Number of EXTERNAL LOAD statements executed (rate or total).
ECNAMMAX	High water mark of External Call Facility call names defined via EXTERNAL NAME (total).
ECPGMMAX	High water mark of External Call Facility load modules defined via EXTERNAL PROGRAM (total).
ECTSKMAX	High water mark of External Call Facility subtasks in use (total).
ECTWAITP	Amount of time External Call Facility calls that had to wait for a load module to become available either because it was non-reentrant and it was in use or because the module was being loaded or deleted (rate or total).

ECTWAITS	Amount of time External Call Facility programs spent waiting for a subtask to become available (rate or total).
ERRPDL	High water mark of the SYSTEM push-down list.
FBMX	High water mark of the number of active disk buffers. This is an optional statistic.
FBWT	Waits for a free Model204 disk buffer (rate or total). This will always be 0 if the number of buffers is greater than or equal to 4 times the number of servers. Makes up part of DKBUFWT.
FINDS	User Language FIND statements executed (rate or total).
GTBLRS	Number of GTBL rearrangements required to add a non-string global "object", such as an image or screen.
GTBLRU	Number of GTBL rearrangements required to add or expand a string global value with $SETG.
HRDRSTRT	Counts the number of times a hard user restart has occured (rate or total).
IN	Input lines from CCAIN, user zero (rate or total).
INCMFS	Input lines from CMS full screen console - ALTIODEV 47 (rate or total).
INCMIO	Input lines from CMS non-full screen console - ALTIODEV 45 (rate or total).
INCRAM	Input lines from remote User Language threads (BATCH2, etc.) - IODEV 29. (rate or total).
INTTY	Input lines from BTAM teletypes - IODEV 15 (rate or total).
INVMFS	Input lines from VMCF or IUCV full screen threads - IODEV 41 (rate or total).
INVMIF	Input arguments supplied by certain IFAM2 or IFAM4 calls from CMS programs - IODEV 43 (rate or total).
INVMIO	Input lines from IUCV or VMCF non-full screen threads - IODEV 39 (rate or total).
INXX	Input lines from QSAM users - IODEV 3 (rate or total).
IN2265	Not used - IODEV 17 (total only).
IN2741	Input lines from BTAM 2741s - IODEV 13 (rate or total).

IN3275 Input lines from BTAM 3270s - IODEV 19 (rate or total).

IXADD Index entries added to tables C and D, including attempts to add duplicates (rate or total).

IXDEL Index entries deleted from tables C and D (rate or total).

IXUPD Index entries changed in tables C and D (rate or total). Equal to IXADD + IXDEL.

JRNLALP Percent of journal dataset full given the current extent allocation. Interpreting this statistic requires some knowledge of the journal dataset allocation characteristics. If the journal is allocated SPACE=(CYL,10,10) and 9 cylinders are filled, JRNLALP will show 90%. If the current extent fills and another is is allocated, JRNLALP will drop to around 50%. High values may signal that the region is about to switch to another ring member or that a critical "full" condition is pending in the journal.

JRNLIO Physical journal writes - CCAJRNL I/O's (rate or total).

JSCREENS Counts the number of times Janus Web incremented the SCREENS statistic. Since these may occur outside of request context, they would not necessarily have corresponding Since-Last statistics (rate or total).

JWEBERRS Counts the number of times that Janus Web returned a 4xx status code. Note that these would not be counted in the SCREENS statistic, but it is handy to know that for example a bunch of 404 or 401 errors are occuring (rate or total).

LCDKBM Number of DKBM MP lock conflicts (rate or total).

LCFORT Number of FORTRAN MP lock conflicts (rate or total).

LCHASH Number of HASH MP lock conflicts (rate or total).

LCLRUQ Number of LRUQ MP lock conflicts (rate or total).

LCRCLK Number of RCLK (record locking) MP lock conflicts (rate or total).

LCTOT Total number of all types of MP lock conflicts (rate or total).

LCV7IB Number of V7IB MP lock conflicts (rate or total).

LCV7OB Number of V7OB MP lock conflicts (rate or total).

LKPOST Real POST SVCs issued to release MP locks (rate or total).

LKWAIT Real WAIT SVCs issued to wait for MP locks (rate or total).

LOCAL0	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOCAL1	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOCAL2	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOCAL3	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOCAL4	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOCAL5	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOCAL6	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOCAL7	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOCAL8	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOCAL9	Locally defined stat for $INCSTAT and $SETSTAT. (rate or total).
LOFORT	Number of times FORTRAN MP lock was obtained (rate or total).
LOFORTE	Number of times FORTRAN MP lock was obtained EXC (rate or total).
LOFORTS	Number of times FORTRAN MP lock was obtained SHR (rate or total).
LOGALP	Percent full of log dataset, if it's being used.
LOGIO	Records added to log dataset, if it's being used (rate or total).
LONGUPDT	Number of update units exceeding MAXUD parameter (rate or total).
LONGUTIM	Total duration in milliseconds of update units that exceeded the MAXUD parameter.
LORCLK	Number of times RCLK MP lock was obtained (rate or total).
LORCLKE	Number of times RCLK MP lock was obtained EXC (rate or total).
LORCLKS	Number of times RCLK MP lock was obtained SHR (rate or total).
LOTOT	Number of times any kind of MP lock was obtained (rate or total).
LOTOTE	Number of times any kind of EXC MP lock was obtained (rate or total).
LOTOTS	Number of times any kind of SHR MP lock was obtained (rate or total).
LPCMLW	Number of times CMLW lock posted. (rate or total).

LPCNST	Number of times CNST lock posted. (rate or total).
LPDBCD	Number of times DBCD lock posted. (rate or total).
LPECMM	Number of times ECMM lock posted. (rate or total).
LPECTM	Number of times ECTM lock posted. (rate or total).
LPFILD	Number of times FILD lock posted. (rate or total).
LPFORT	Number of times FORT lock posted. (rate or total).
LPHASH	Number of times HASH lock posted. (rate or total).
LPITS1	Number of times ITS1 lock posted. (rate or total).
LPITS2	Number of times ITS2 lock posted. (rate or total).
LPJRNL	Number of times JRNL lock posted. (rate or total).
LPLIOS	Number of times LIOS lock posted. (rate or total).
LPLRUQ	Number of times LRUQ lock posted. (rate or total).
LPMQCH	Number of times MQCH lock posted. (rate or total).
LPMQST	Number of times MQST lock posted. (rate or total).
LPMQTA	Number of times MQTA lock posted. (rate or total).
LPPAGE	Number of times PAGE lock posted. (rate or total).
LPQMAN	Number of times QMAN lock posted. (rate or total).
LPQUEU	Number of times QUEU lock posted. (rate or total).
LPRCLK	Number of times RCLK lock posted. (rate or total).
LPSIR1	Number of times SIR1 lock posted. (rate or total).
LPSIR2	Number of times SIR2 lock posted. (rate or total).
LPSMFS	Number of times SMFS lock posted. (rate or total).
LPTOTAL	Total something relating to lock posters. (rate or total).
LPTWND	Number of times TWND lock posted. (rate or total).
LPUSR1	Number of times USR1 lock posted. (rate or total).

LPUSR2	Number of times USR2 lock posted. (rate or total).
LPV7IB	Number of times V7IB lock posted. (rate or total).
LPV7OB	Number of times V7OB lock posted. (rate or total).
LSCMLW	Number of times CMLW lock spun. (rate or total).
LSCNST	Number of times CNST lock spun. (rate or total).
LSDBCD	Number of times DBCD lock spun. (rate or total).
LSECMM	Number of times ECMM lock spun. (rate or total).
LSECTM	Number of times ECTM lock spun. (rate or total).
LSFILD	Number of times FILD lock spun. (rate or total).
LSFORT	Number of times FORT lock spun. (rate or total).
LSHASH	Number of times HASH lock spun. (rate or total).
LSITS1	Number of times ITS1 lock spun. (rate or total).
LSITS2	Number of times ITS2 lock spun. (rate or total).
LSJRNL	Number of times JRNL lock spun. (rate or total).
LSLIOS	Number of times LIOS lock spun. (rate or total).
LSLRUQ	Number of times LRUQ lock spun. (rate or total).
LSMQCH	Number of times MQCH lock spun. (rate or total).
LSMQST	Number of times MQST lock spun. (rate or total).
LSMQTA	Number of times MQTA lock spun. (rate or total).
LSPAGE	Number of times PAGE lock spun. (rate or total).
LSQMAN	Number of times QMAN lock spun. (rate or total).
LSQUEU	Number of times QUEU lock spun. (rate or total).
LSRCLK	Number of times RCLK lock spun. (rate or total).
LSSIR1	Number of times SIR1 lock spun. (rate or total).
LSSIR2	Number of times SIR2 lock spun. (rate or total).

LSSMFS	Number of times SMFS lock spun. (rate or total).
LSTOTAL	Total something relating to lock spins. (rate or total).
LSTWND	Number of times TWND lock spun. (rate or total).
LSUSR1	Number of times USR1 lock spun. (rate or total).
LSUSR2	Number of times USR2 lock spun. (rate or total).
LSV7IB	Number of times V7IB lock spun. (rate or total).
LSV7OB	Number of times V7OB lock spun. (rate or total).
LWCMLW	Number of times CMLW lock waited. (rate or total).
LWCNST	Number of times CNST lock waited. (rate or total).
LWDBCD	Number of times DBCD lock waited. (rate or total).
LWECMM	Number of times ECMM lock waited. (rate or total).
LWECTM	Number of times ECTM lock waited. (rate or total).
LWFILD	Number of times FILD lock waited. (rate or total).
LWFORT	Number of times FORT lock waited. (rate or total).
LWHASH	Number of times HASH lock waited. (rate or total).
LWITS1	Number of times ITS1 lock waited. (rate or total).
LWITS2	Number of times ITS2 lock waited. (rate or total).
LWJRNL	Number of times JRNL lock waited. (rate or total).
LWLIOS	Number of times LIOS lock waited. (rate or total).
LWLRUQ	Number of times LRUQ lock waited. (rate or total).
LWMQCH	Number of times MQCH lock waited. (rate or total).
LWMQST	Number of times MQST lock waited. (rate or total).
LWMQTA	Number of times MQTA lock waited. (rate or total).
LWPAGE	Number of times PAGE lock waited. (rate or total).
LWQMAN	Number of times QMAN lock waited. (rate or total).

LWQUEU Number of times QUEU lock waited. (rate or total).

LWRCLK Number of times RCLK lock waited. (rate or total).

LWSIR1 Number of times SIR1 lock waited. (rate or total).

LWSIR2 Number of times SIR2 lock waited. (rate or total).

LWSMFS Number of times SMFS lock waited. (rate or total).

LWTOTAL Total something relating to lock waiters. (rate or total).

LWTWND Number of times TWND lock waited. (rate or total).

LWUSR1 Number of times USR1 lock waited. (rate or total).

LWUSR2 Number of times USR2 lock waited. (rate or total).

LWV7IB Number of times V7IB lock waited. (rate or total).

LWV7OB Number of times V7OB lock waited. (rate or total).

MODPAGA Total number of pages in the disk buffer pool currently occupied by modified table A pages from all database files. These pages must be written to disk before being flushed from the buffer pool.

MODPAGB Total number of pages in the disk buffer pool currently occupied by modified table B pages from all database files except CCATEMP. These pages must be written to disk before being flushed from the These pages must be written to disk before being flushed from the buffer pool. Modified CCATEMP table B pages are counted under the MODPAGX statistic.

MODPAGC Total number of pages in the disk buffer pool currently occupied by modified table C pages from all database files. These pages must be written to disk before being flushed from the buffer pool.

MODPAGD Total number of pages in the disk buffer pool currently occupied by modified table D pages from all database files. These pages must be written to disk before being flushed from the buffer pool.

MODPAGE Total number of pages in the disk buffer pool currently occupied by modified pages from all tables in all database files. These pages must be written to disk before being flushed from the buffer pool. Equal to MODPAGA + MODPAGB + MODPAGC + MODPAGD + MODPAGF + MODPAGX + modfied pages from table X which can be obtained via the BUFMX statistic.

MODPAGF Total number of pages in the disk buffer pool currently occupied by modified FCT pages from all database files. These pages must be written to disk before being flushed from the buffer pool.

MODPAGL Total number of pages in the disk buffer pool currently occupied by modified table E pages from all database files. These pages must be written to disk before being flushed from the buffer pool. The L stands for LOBs, or large objects, which is what is stored in table E.

MODPAGX Total number of pages in the disk buffer pool currently occupied by modified table X pages from CCATEMP. All CCATEMP pages are considered to be in table B. These pages must be written to disk before being flushed from the buffer pool.

MOVE Thread switches (rate or total).

MPHASHD Number of MP duplicate hash entries found (rate or total).

MPSTOPS The number of times Model 204 temporarily disabled multi-processing. A high value for MPSTOPS could indicate suboptimal MP/204 processing. Note that SirMon itself will sometimes do an MPSTOP to collect certain statistics. MPSTOPS will alwasy be zero for Model 204 versions prior to 7.4, and in non-MP environments (rate or total).

MQAPICNT Number of MQ Series calls excluding MQGETs with WAIT specified (rate or total).

MQAPITIM Time spent in MQ Series calls excluding MQGETs with WAIT specified (rate or total).

MQAVTASK The number of available MQ Series tasks (total). This number is the maximum number of MQ Series tasks that can be allocated in the region (the value of the MQMXTASK parameter) minus the current number of MQ Series tasks in use (the MQIUTASK statistic).

MQBYTEIN Number of bytes received by MQ Series MQGET calls (rate or total).

MQBYTEOU Number of bytes sent by MQ Series MQPUT and MQPUT1 calls (rate or total).

MQCUBUFS Number of bytes of MQ Series message buffers currently allocated (total).

MQCUQU Number of bytes of MQ Series queues currently open (total).

MQCUTASK Current number of MQ Series tasks in the region (total)

MQFRTASK The number of unused MQ Series tasks (total). This number is the number of MQ Series tasks in the region (the MQCUTASK statistic) minus the current number of MQ Series tasks in use (the MQIUTASK statistic).

MQGETS Number of MQ Series MQGET calls (rate or total).

MQGWTCNT Number of MQ Series MQGET calls with WAIT specified (rate or total).

MQGWTSUC Number of successful MQ Series MQGET calls with WAIT specified (rate or total). Always less than or equal to MQGWTCNT.

MQGWTTIM Time spent waiting for a response from an MQ Series MQGET call that had a non-unlimited time-limit (rate or total). Always less than or equal to MQGWTTSP.

MQGWTTSP Wait time specified for all MQ Series MQGET calls that had a non-unlimited time-limit (rate or total). Always greater than or equal to MQGWTTIM.

MQHWBUFS High water mark of number of bytes of MQ Series message buffers allocated (total).

MQHWQU High water mark of number of open MQ Series queues (total).

MQHWTASK High water mark of number of MQ Series tasks in the region (total).

MQINTASK Initial number of MQ Series tasks in the region as specified by the MQINTASK system parameter (total).

MQIUTASK Number of MQ Series tasks in use in the region (total).

MQMXTASK Maximum number of MQ Series tasks in the region as specified by the MQMXTASK system parameter (total).

MQNUMQM The number of distinct MQ Series queue managers connected to over the course of the run (total).

MQNUMQU The number of distinct MQ Series queues accessed over the course of the run (total).

MQPUTS Number of MQ Series MQPUT and MQPUT1 calls (rate or total).

MTDEQ Number of items taken by MAIN from MAIN queue. Rate or total. Before Model 204 Version 7.4 always returns 0.

MTSDEQ Number of items taken by MAIN from another task queue. Rate or total. Before Model 204 Version 7.4 always returns 0.

MTZDEQ Number of items taken by MAIN from zIIP queue. Rate or total. Before Model 204 Version 7.4 always returns 0. To see non-zero results for MTZDEQ you must turn off SCHDOPT x'20'. SCHDOPT x'20' prevents maintask from 'stealing' zIIP work.

NBLKI Current number of threads blocked (waiting) and in a server.

NBLKO Current number of threads blocked (waiting) and not in a server.

NJBUFF Number of journal buffers.

NLOGON Current number of threads with logged on users.

NOFFQ Current number of threads blocked (waiting), not in server and not on a queue scanned by the scheduler. These are usually threads waiting for VTAM input.

NREDY Current number of threads ready to run.

NREDYR Current number of threads ready to run or running.

NRUNBL Current number of threads ready to run, running or waiting to be swapped into a server so they could be run. Equal to NLOGON-NWAIT.

NRUNG Current number of threads running.

NSERVS Number of servers defined in the online job.

NSWPG Current number of threads swapping into or out of a server.

NUMBUF Number of allocated database file page buffers.

NUMBUFG Number of allocated above-the-bar database file page buffers.

NUSERS Total number of threads defined to online.

NWAIT Current number of threads blocked (waiting). Equal to NLOGON-NRUNBL. Same as NWTNG.

NWTCFR Current number of threads waiting for a critical file resource. Equal to NWT24+NWT25.

NWTCK Current number of threads waiting to wait for checkpoint I/O. This is the portion of NWT18 associated with the checkpoint data set.

NWTCKIO Current number of threads waiting for checkpoint I/O. This is NWTCK+NWT16.

NWTCKPC Current number of threads waiting for checkpoint completion. This is the same as NWT20.

NWTDKIO Current number of threads waiting for database or CCATEMP disk I/O. This is the same as NWT01.

NWTENQ Current number of threads waiting for an internal resource or a record lock. This is the same as NWT07.

NWTJR Current number of threads waiting to wait for journal I/O. This is the portion of NWT18 associated with the journal data set.

NWTJRIO Current number of threads waiting for journal I/O. This is NWTJR+NWT15.

NWTMISC Current number of threads waiting for miscellaneous events. This is NWAIT-NWTDKIO-NWTUSER-NWTENQ-NWTJRIO-NWTCKIO -NWTCKPC-NWTCFR.

NWTNG Current number of threads blocked (waiting). Equal to NLOGON-NRUNBL. Same as NWAIT.

NWTSV Current number of threads swapped out and waiting for a server.

NWTUNK Current number of threads waiting for undefined event. Please call Technical Support if you receive a non-zero value of this.

NWTUSER Current number of threads waiting for user input or for output to reach a user. Equal to NWT02+NWT03+NWT11.

NWT00 Current number of threads in an unspecified wait.

NWT01 Current number of threads waiting for database or CCATEMP disk I/O. This is the same as NWTDKIO.

NWT02 Current number of threads waiting for output to reach a user.

NWT03 Current number of threads waiting for user input.

NWT04 Current number of threads waiting for operator console input.

NWT05 Current number of threads waiting for DUMP writes.

NWT06 Current number of threads waiting for RESTORE reads.

NWT07 Current number of threads waiting for internal resources or for record locks.

NWT08 Current number of threads waiting for a free disk buffer.

NWT09	Current number of threads waiting forever (deactivated).
NWT10	Current number of threads waiting for a pseudo subtask or reactivation (hung terminal).
NWT11	Current number of threads waiting for an IFAM2 or IFAM4 call.
NWT12	Current number of threads waiting for a wakeup.
NWT13	Current number of threads waiting for a server I/O. Note that this will almost always be zero because it does not include users that are being swapped in or out as a result of another wait type or slicing decisions.
NWT14	Not used.
NWT15	Current number of threads waiting for journal writes to complete.
NWT16	Current number of threads waiting for checkpoint writes to complete.
NWT17	Current number of threads waiting for a check on a previous write to the checkpoint data set.
NWT18	Current number of threads waiting for multi-user output arbitration. Number waiting for journal or checkpoint buffer.
NWT19	Current number of threads waiting for checkpoint requests to be acknowledged.
NWT20	Current number of threads waiting for checkpoint completion. This is the same as NWTCKPC.
NWT21	Current number of threads waiting forever (dead user).
NWT22	Current number of threads waiting for VSAM or sequential file input.
NWT23	Current number of threads waiting for user login after a login failure.
NWT24	Current number of threads waiting for exclusive control of a critical file resource.
NWT25	Current number of threads waiting for shared control of a critical file resource.
NWT26	Current number of threads waiting for a VTAM buffer.
NWT27	Current number of threads waiting for interprocess input.
NWT28	Current number of threads waiting for interprocess output to complete.

NWT29	Current number of threads waiting for response from the security interface.
NWT30	Current number of threads waiting in swappable $WAITs.
NWT31	Current number of threads waiting in non-swappable $WAITs.
NWT32	Current number of threads waiting on the DB2 subtask.
NWT33	Current number of threads waiting on replicator service thread.
NWT34	Current number of replicator service threads waiting for work.
NWT35	Current number of threads waiting on replication initialization.
NWT36	Current number of threads waiting on replication UL block startup.
NWT37	Current number of threads waiting on replication recover completion.
NWT38	Current number of threads waiting on a response from a SoftSpy server thread. Same as NWT62.
NWT39	Current number of SoftSpy server threads waiting for input from a user. Same as NWT63.
NWT40	Current number of threads waiting on MQ subtask to be available.
NWT41	Current number of threads waiting on MQ subtask to run.
NWT42	Current number of threads waiting on MQGET with wait time specified.
NWT43	Current number of threads waiting on ECF to LOAD/DELETE a module.
NWT44	Current number of threads waiting on external program to be free.
NWT45	Current number of threads waiting on ECF subtask to be free.
NWT46	Current number of threads waiting on external program to run.
NWT47	Current number of threads with a wait type of 47.
NWT48	Current number of threads with a wait type of 48.
NWT49	Current number of threads with a wait type of 49.
NWT50	Current number of threads waiting for HSM recall of a migrated dataset.
NWT51	Current number of threads waiting for share mode constraints db lock.

NWT52	Current number of threads waiting for share exc. constraints db lock.
NWT53	Current number of threads waiting for sub-tran cp processing to complete for this user.
NWT54	Current number of threads waiting on blocking file command to complete (sub-tran CP postponement).
NWT55	Current number of threads waiting on sub-tran CP CPTS timer.
NWT56	Current number of threads waiting on sub-tran CP scanner array.
NWT57	Current number of threads with a wait type of 57.
NWT58	Current number of threads with a wait type of 58.
NWT59	Current number of threads with a wait type of 59.
NWT60	Current number of threads with a wait type of 60.
NWT61	Current number of threads with a wait type of 61.
NWT62	Current number of threads waiting on a response from a SoftSpy server thread. Same as NWT38.
NWT63	Current number of SoftSpy server threads waiting for input from a user. Same as NWT39.
NWT64	Current number of threads with a wait type of 64.
NWT65	Current number of threads with a wait type of 65.
NWT66	Current number of threads with a wait type of 66.
NWT67	Current number of threads with a wait type of 67.
NWT68	Current number of threads with a wait type of 68.
NWT69	Current number of threads with a wait type of 69.
NWT70	Current number of threads with a wait type of 70.
NWT71	Current number of threads with a wait type of 71.
NWT72	Current number of threads with a wait type of 72.
NWT73	Current number of threads with a wait type of 73.
NWT74	Current number of threads with a wait type of 74.

NWT75	Current number of threads with a wait type of 75.
NWT76	Current number of threads with a wait type of 76.
NWT77	Current number of threads with a wait type of 77.
NWT78	Current number of threads with a wait type of 78.
NWT79	Current number of threads with a wait type of 79.
NWT80	Current number of threads with customer wait code 0.
NWT81	Current number of threads with customer wait code 1.
NWT82	Current number of threads with customer wait code 2.
NWT83	Current number of threads with customer wait code 3.
NWT84	Current number of threads with customer wait code 4.
NWT85	Current number of threads with customer wait code 5.
NWT86	Current number of threads with customer wait code 6.
NWT87	Current number of threads with customer wait code 7.
NWT88	Current number of threads with customer wait code 8.
NWT89	Current number of threads with customer wait code 9.
NWT90	Current number of threads with a wait type of 90.
NWT91	Current number of threads with a wait type of 91.
NWT92	Current number of threads with a wait type of 92.
NWT93	Current number of threads with a wait type of 93.
NWT94	Current number of threads with a wait type of 94.
NWT95	Current number of threads with a wait type of 95.
NWT96	Current number of threads with a wait type of 96.
NWT97	Current number of threads waiting on Fast/Unload request.
NWT98	Current number of threads waiting on MAXAUSER delay.
NWT99	Current number of threads waiting on SirFact quiesce.

NWT100	Current number of threads with a wait type of 100.
NWT101	Current number of threads with a wait type of 101.
NWT102	Current number of threads with a wait type of 102.
NWT103	Current number of threads with a wait type of 103.
NWT104	Current number of threads with a wait type of 104.
NWT105	Current number of threads with a wait type of 105.
NWT106	Current number of threads with a wait type of 106.
NWT107	Current number of threads with a wait type of 107.
NWT108	Current number of threads with a wait type of 108.
NWT109	Current number of threads with a wait type of 109.
OBJSWAP	SOAP ULI objects must be resident in a server area (VTBL and perhaps STBL) before they can be referenced. If a request accesses more objects than were allocated, objects are swapped from the server to CCATEMP. Rate or total.
OFFIN	Number of something (rate or total).
OFFOU	Number of something (rate or total).
OUT	Number of output lines to CCAPRINT - User 0 output.
OUTCMFS	Output lines from CMS full screen console - ALTIODEV 47 (rate or total).
OUTCMIO	Output lines from CMS non-full screen console - ALTIODEV 45 (rate or total).
OUTCRAM	Output lines from remote User Language threads (BATCH2, etc.) - IODEV 29. (rate or total).
OUTTTY	Output lines from BTAM teletypes - IODEV 15 (rate or total).
OUTVMFS	Output lines from VMCF or IUCV full screen threads - IODEV 41 (rate or total).
OUTVMIF	Arguments supplied by certain IFAM2 or IFMA4 calls from CMS programs - IODEV 43 (rate or total).

OUTVMIO	Output lines from VMCF or IUCV non-full screen threads - IODEV 39 (rate or total).
OUTXX	Output lines from QSAM users - IODEV 3 (rate or total).
OUT2265	Not used - IODEV 17 (total only).
OUT2741	Output lines from BTAM 2741s - IODEV 13 (rate or total).
OUT3275	Output lines from BTAM 3270s - IODEV 19 (rate or total).
PBRSFLT	Number of private buffer reserve faults. Each occurrence of this value indicates a user restart (rate or total).
PBUFAVL	Number of private buffers available.
PBUFMAX	Maximum number of private buffers that can be reserved.
PBUFUSE	The number of private buffers currently reserved.
PCPU	Percentage of CPU acquired when requested. This is a measure of how much other work on the CPU is adversely affecting the Online. PCPU of 100 means not at all.
PCPUC	CPU total, in milliseconds - numerator in PCPU calculations.
PCPUR	Runnable time total, in milliseconds - denominator in PCPU calculations.
PRCNPRE	Number of non-precompiled procedures in all active subsystems.
PRCPRE	Number of precompiled procedures in all active subsystems.
PRCPSVW	Number of server writes while running precompiled procedures in all active subsystems since they were started.
PRCRES	Number of resident precompiled procedures in all active subsystems.
PRCRESB	Number of bytes used by resident QTBL for procedures in all active subsystem.
PRCRESE	Number of procedures in all active subsystems that are eligible to use resident QTBL but were not able to obtain the required virtual storage.
PRCSAVE	Number of saved compilations for precompiled procedures in all active subsystems.
PRCSVWR	Number of server writes while running any procedure in all active subsystems.

RECADD Records started in table B not including extension records (rate or total).

RECDEL Records deleted from table B not including extension records (rate or total).

RECDS Records processed by FOR LOOPS, SORTS, IFGETS, or IFPOINTS (rate or total).

RECENQH High Water Mark (bytes) in record enqueuing table used.

RECENQP Percent of record enqueueing table currently in use. Equal to 100 * (RECENQU / RECENQT).

RECENQQ High Water Mark percentage of record enqueuing table used.

RECENQT Total number of bytes in the record enqueueing table.

RECENQU Total number of bytes currently in use in the record enqueueing table.

RECNQHH High Water Mark number of record enqueuing headers used.

REDY Performance statistic: Average number of users ready to run. Taken from the latest report printed by the performance subtask.

REDYA Performance statistic: same as REDY but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

REDYT Performance statistic: same as REDY but calculated across all performance monitoring samples since the beginning of the run.

REQ Requests executed or streams written to USE output (rate or total).

RESCURR Number of bytes currently used for resident (shared) QTBL. This is the same as the viewable parameter by the same name.

RESEVAL Number of evaluations for procedures in any subsystem using resident (shared) QTBL.

RESHIGH High water mark of the number of bytes used for resident (shared) QTBL. This is the same as the viewable parameter by the same name.

RESP Percentile response time for last 100 full screen terminal I/O's. RESP must be requested as RESPxx, where "xx" is a 2-digit percentile. RESP75 gives the 75th percentile response time, RESP90 gives the 90th percentile, etc. Stat $functions return milliseconds, SirMon displays seconds.

RESPAVG Average response time for the last 100 full screen I/O's. Stat $functions return milliseconds, SirMon displays seconds.

RESPIND Relative measure of system responsiveness (1.00 is ideal). This measure can be affected significantly by highly I/O bound batch jobs if there are relatively few users on the system. See RESP, RESPAVG, and RESPMED for better responsiveness measures.

RESPMED Median response time for the last 100 full screen I/O's. Stat $functions return milliseconds, SirMon displays seconds.

RESSIZE Total number of bytes available for use for resident (shared) QTBL. This is the same as the settable/viewable parameter by the same name.

RESSWCH Number of evaluations for procedures in any subsystem that had to switch from using resident (shared) QTBL to non-resident QTBL.

REST Reads from a Model204 backup file resulting from a RESTORE command (rate or total).

RESTHRSH Server wait threshold for making request resident.

RSXCOMP Record enqueueing table compactions (rate or total). A non-zero value of RSXCOMP indicates that you should probably increase LRETBL.

RUNG Performance statistic: Average number of users running. Taken from the latest report printed by the performance subtask.

RUNGA Performance statistic: same as RUNG but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

RUNGT Performance statistic: same as RUNG but calculated across all performance monitoring samples since the beginning of the run.

SCHDCPU Amount of scheduler CPU used by Model 204 in milliseconds. This value will be 0 unless the '1' bit of the SCHDOPT parameter is set (rate or total).

SCRNS Full screen reads (rate or total) or text Web responses sent.

SDMACT Current number of active sdaemons - this counts all Janus TCP/IP users as well as background sessions initiated by calls to $COMMBG, $COMMAND and $COMMNDL.

SDMACTH High water mark for active sdaemons.

SDMACTM Maximum number of active sdaemons allowed. This will match the NOTERM setting on the sdaemon IODEV (usually it is IODEV 15).

SDMFRE Number of free (available) sdaemons - SDMACTM - SDMACT.

SDMFREL Low water mark for number of free (available) sdaemons - SDMACTM - SDMACTH.

SDMUNAV Number of times an sdaemon was required but unavailable (either for JANUS or a synchronous $COMM request). Does not include number of times an asynchronous $COMMBG request waited to acquire an sdaemon.

SFTRSTRT Counts the number of times a soft user restart has occured (rate or total).

SLIC Times users were time sliced (rate or total).

SMPLS Samples in the last completed performance monitoring report. SMPLS is used as the numerator in deriving performance monitor stats BLKI, BLKO, REDY, RUNG, SWPG, SVAC, USRS and WTSV. Always 0 if the performance monitoring subtask is not running.

SMPLSC Performance statistic: same as SMPLS but for report currently being calculated.

SMPLST Performance statistic: same as SMPLS but calculated since the beginning of the run.

SNAPID Number of SNAP DUMPs that have occurred in the online.

SORTS User Language SORT statements evaluated (rate or total).

SRSDEFT Default timeout value for saved record sets and $lists. Same as the value of the eponymous system parameter.

SRSMAX Maximum number of saved record sets and/or $lists in the system. Same as the value of the eponymous system parameter.

SRSMAXT Maximum timeout value allowed for a saved record set or $list. Same as the value of the eponymous system parameter.

SRSMAXU Maximum number of saved record sets and/or $lists per userid. Same as the value of the eponymous system parameter.

SRSNCUR Current number of saved record set or $list slots used out of the SRSMAX slots available.

SRSNEXP Number of saved record sets or $lists that were expired, that is deleted because they had not been referenced withing their timeout time (rate or total).

SRSNFUL Number of saved record sets or $lists that could not be saved because there were already SRSMAX non-expired saved record sets or $lists saved in the system and CANCEL or ERROR was in effect for $WEB_SAVE_RECSET or $WEB_SAVE_LIST calls (rate or total).

SRSNHGH Highwater mark of saved record set or $list slots used out of the SRSMAX slots available.

SRSNRST Number of record sets or $lists restored via $WEB_REST_RECSET or $WEB_REST_LIST calls (rate or total).

SRSNSAV Number of record sets or $lists saved via $WEB_SAVE_RECSET or $WEB_SAVE_LIST calls (rate or total).

SRSNSTL Number of saved record sets or $lists that were stolen, that is deleted before their timeout time, because another user did a $WEB_SAVE_RECSET or $WEB_SAVE_LIST with STEAL in effect and the maximum saved record sets and $lists (SRSMAX) were already saved.

SRSNSUS Number of saved record sets or $lists that were stolen, that is deleted before their timeout time, because a userid did a $WEB_SAVE_RECSET or $WEB_SAVE_LIST with USTEAL in effect and the maximum saved record sets and $lists (SRSMAXUS) were already saved by the userid (rate or total).

SRSNULM Number of saved record sets or $lists that could not be saved because there were already SRSMAXUS non-expired saved record sets or $lists saved by the userid and UCANCEL or UERROR was in effect for $WEB_SAVE_RECSET or $WEB_SAVE_LIST calls (rate or total).

SRSSAVG Average age in seconds of saved record sets or $lists stolen because a user did a $WEB_SAVE_RECSET or $WEB_SAVE_LIST and the system limit of saved record sets and $lists (SRSMAX) had been hit and STEAL was in effect for the indicated $function calls.

SRSSMIN Minimum age in seconds of saved record sets or $lists stolen because a user did a $WEB_SAVE_RECSET or $WEB_SAVE_LIST and the system limit of saved record sets and $lists (SRSMAX) had been hit and STEAL was in effect for the indicated $function calls.

SRSUAVG Average age in seconds of saved record sets or $lists stolen because a user did a $WEB_SAVE_RECSET or $WEB_SAVE_LIST and the user limit of saved record sets and $lists (SRSMAXUS) had been hit and USTEAL was in effect for the indicated $function calls.

SRSUMIN Minimum age in seconds of saved record sets or $lists stolen because a user did a $WEB_SAVE_RECSET or $WEB_SAVE_LIST and the user limit of saved record sets and $lists (SRSMAXUS) had been hit and USTEAL was in effect for the indicated $function calls.

STCPU Amount of CPU used by offload subtasks in milliseconds - stat $functions return milliseconds, SirMon displays seconds (rate or total).

STDEQ Number of work units removed from offload queue by offload subtasks (rate or total). A high ratio of STDEQ to STCPU could indicate an MP mode switch thrashing situation. For a 60 MIP processor, a ratio of 2 might be high - faster processors should have lower rations.

STIMERS Number of operating system STIMERS issued by Model 204 (rate or total).

STORAG Total number of bytes of virtual storage currently allocated by Model 204.

STORAGH High water mark for total number of bytes of virtual storage allocated by Model 204.

STORAGI Total number of bytes of virtual storage allocated by Model 204 during initialization.

STORG24 Total number of bytes of 24 bit ("below the line") virtual storage currently allocated by Model 204.

STORG31 Total number of bytes of 31 bit ("above the line") virtual storage currently allocated by Model 204.

STPOST Total number of POST SVCs issued to transfer work to/from offload subtasks (rate or total).

STRECDS Records sorted in SORT statement evaluation (rate or total).

STWAIT Total number of times offload subtasks issued a WAIT SVC to wait for work from the maintask (rate or total).

STZDEQ Number of items taken by MP from zIIP queue. Rate or total. Before Model 204 Version 7.4 always returns 0. To see non-zero results for STZDEQ you must turn off SCHDOPT x'40'. SCHDOPT x'40' prevents a subtask from 'stealing' from zIIP.

SVAC Performance statistic: Average number of active servers. Taken from the latest report printed by the performance subtask.

SVACA	Performance statistic: same as SVAC but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.
SVACT	Performance statistic: same as SVAC but calculated across all performance monitoring samples since the beginning of the run.
SVIO	Server reads and writes (rate or total). Equal to SVRD+SVWR.
SVMX	Performance statistic: High water mark of active servers.
SVPAGES	Number of 4K pages of server data swapped in or out by Model204.
SVRD	Server reads (rate or total).
SVWR	Server writes (rate or total).
SWPG	Performance statistic: Average number of users in transit to or from a server. Taken from the latest report printed by the performance subtask.
SWPGA	Performance statistic: same as SWPG but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.
SWPGT	Performance statistic: same as SWPG but calculated across all performance monitoring samples since the beginning of the run.
SWT	Number of real waits while not in user switching mode (rate or total).
TCON	TCAM congested queue returns (rate or total).
TCPBACT	Number of active Janus connections.
TCPBBR	Number of bytes read on Janus connections (rate or total).
TCPBBW	Number of bytes written on Janus connections (rate or total).
TCPBNBW	Number of blocked writes on Janus connections. These are writes that could not be issued immediately but had to wait for notification from the TCPIP address space that sufficient buffer space had been cleared. Blocked writes can be caused by network bottlenecks or applications that don't immediately accept output data (rate or total).
TCPBNR	Number of reads on Janus connections. (rate or total).
TCPBNW	Number of writes on Janus connections (rate or total).
TCPCON	Current number of active Janus connections.

TCPCONH	High water mark for number of Janus connections.
TCPCONL	Number of licensed Janus connections.
TCPCONM	Smaller of either the number of licensed Janus connections or the number of sdaemons allocated to the online.
TCPFRE	Number of free Janus connections (TCPCONM - TCPCON).
TCPFREL	Low water mark for number of free connections (TCPCONM - TCPCONH)
TCPREF	Number of Janus connections refused due to some limit: MAXCON, licensed connections, or storage.
TFMX	High water mark of CCATEMP pages in use.
TQWT	TCAM write waits (rate or total).
TSMX	Highest CCATEMP page number in use from small model area.
UBCUR	Total number of bytes currently allocated for Universal Buffers.
UBHWM	High water mark for storage allocated for Universal Buffers.
UPTRANS	Number of updating transactions started (rate or total).
USMX	Performance statistic: Highwater mark of logged on users.
USRS	Performance statistic: Average number of simultaneously logged on users. Taken from the latest report printed by the performance monitoring subtask.
USRSA	Performance statistic: same as USRS but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.
USRST	Performance statistic: same as USRS but calculated across all performance monitoring samples since the beginning of the run.
UTI>50	Number of user screen requests that came in greater than 50 seconds after the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.
UTI0.1	Number of user screen requests that came in less than 0.1 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI0.25 Number of user screen requests that came in between 0.1 and 0.25 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI0.5 Number of user screen requests that came in between 0.25 and 0.5 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI1 Number of user screen requests that came in between 0.5 and 1 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI10 Number of user screen requests that came in between 5 and 10 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI15 Number of user screen requests that came in between 10 and 15 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI2 Number of user screen requests that came in between 1 and 2 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI20 Number of user screen requests that came in between 15 and 20 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI30 Number of user screen requests that came in between 20 and 30 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI5 Number of user screen requests that came in between 2 and 5 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

UTI50 Number of user screen requests that came in between 30 and 50 seconds of the previous Model 204 response (rate or total). Always 0 unless the X'08' bit is set in the system MONPARM parameter.

VTAMBW VTAM buffer waits (rate or total). Equal to VTAMBWI+VTAMBWO. A non-zero value for VTAMBW means that you should probably consider increasing TERMBUF.

VTAMBWI VTAM buffer waits for input (rate or total). A non-zero value for VTAMBWI means that you should probably consider increasing TERMBUF.

VTAMBWO VTAM buffer waits for output (rate or total). A non-zero value for VTAMBWO means that you should probably consider increasing TERMBUF.

VTAMWW VTAM write waits (rate or total).

WAIT Real waits (rate or total).

WTSV Performance statistic: Average number of users waiting for a server. Taken from the latest report printed by the performance monitoring subtask.

WTSVA Performance statistic: same as WTSV but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

WTSVT Performance statistic: same as WTSV but calculated across all performance monitoring samples since the beginning of the run.

ZTDEQ Number of items taken by zIIP from zIIP queue. Rate or total. Before Model 204 Version 7.4, always returns 0.

APPENDIX B User statistics definitions

User statistics provide information about each user logged on to the Online system. The value of each user statistic is determined by the activity and state within the Online for that particular user.

ACCOUNT User's M204 account.

AUDIT Audit lines produced (rate or total).

BACKOUTS Number of update units that had to be backed out (rate or total).

BADD Fields added to table B (rate or total).

BCHG Fields changed in place in table B (rate or total).

BDEL Fields deleted from table B (rate or total).

BLKCFRE Number of times the user caused another user to wait due to this user holding an exclusive critical file resource enqueue. Only available if CFRLOOK=1 (rate or total).

BLKI Percentage of performance samples in which the user was in a server and waiting for an event. Always 0 if the performance subtask is not active (10 = 10%, etc.).

BLKIA Performance statistic: same as BLKI but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

BLKIT Performance statistic: same as BLKI but calculated across all performance monitoring samples since the beginning of the run.

BLKO Percentage of performance samples in which the user was not in a server and waiting for an event. Always 0 if the performance subtask is not active (10 = 10%, etc.).

BLKOA Performance statistic: same as BLKO but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

BLKOT Performance statistic: same as BLKO but calculated across all performance monitoring samples since the beginning of the run.

BLKRLK Number of times the user caused another user to wait due to this user holding any kind of critical file resource enqueue. Only available if CFRLOOK=1 (rate or total).

BXCHNG New segments of records starting or local lists deleted in the ordered index by the user (rate or total).

BXDELE Removals from tree structure in the ordered index (rate or total).

BXFIND Searches to locate FIELD NAME = VALUE pairs in the ordered index by the user (rate or total).

BXFREE Nodes emptied in the ordered index by the user (rate or total).

BXINSE New records inserted with an unused FIELD NAME = VALUE pair in the ordered index by the user (rate or total).

BXNEXT FIELD NAME = VALUE pairs touched in the ordered index during range retrievals by the user (rate or total).

BXRFND Calls for range retrieval from the ordered index by the user (rate or total).

BXSPLI Node splits in the ordered index by the user (rate or total).

CFRALL Returns a 16 character string that describes the thread's critical file resource holdings. If a thread holds or is attempting to obtain a critical file resource lock, this statistic returns the name of the file associated with the critical file resource followed by 6 characters that indicate the mode for the various critical file resource locks - Direct, Index, Exists, Recenq, Allod, and Alloe. These characters contain either '.' meaning not held, 'X' meaning exclusive, or 'S' meaning share.

CFRCONF Critical file resource conflicts (rate or total). Times over an interval that a critical file resource was required but not available.

CFRDIER Returns a 12 character string that describes the thread's critical file resource activity. If a thread holds or is attempting to obtain a critical file resource lock, this statistic returns the name of the file associated with the critical file resource followed by 4 characters that indicate the mode in which the thread holds the 4 critical file resource locks - Direct, Index, Exists and Recenq (hence the DIER in CFRDIER). The characters indicating the lock mode are '.' meaning not held, 'X' meaning exclusive and 'S' meaning share.

CFRWTT Critical file resource wait time (rate or total). Time spent over an interval waiting for critical file resources. Collected in milliseconds, presented in SirMon in seconds.

CNCT	Length of time the user has been logged on.
COMMITS	Number of commited update units since logon (rate or total).
CPU	CPU consumed (rate or total). Collected in milliseconds, presented by SirMon in seconds.
DIRRCD	Records scanned in direct searches on table B (rate or total).
DKAR	Buffers allocated without page read requests (rate or total).
DKIO	Physical page reads and writes from/to Model204 database files and CCATEMP (rate or total). DKIO = DKRD + DKWR.
DKPR	Requests for a page (rate or total).
DKRD	Physical page reads from a Model204 database file or CCATEMP (rate or total).
DKRR	Physical page reads for recently used pages (rate or total).
DKWR	Physical page writes to a Model204 database file or CCATEMP (rate or total).
DMPRST	Reads from and writes to a Model204 file backup via the DUMP and RESTORE commands (rate or total). DMPRST = DUMP + REST.
DUMP	Writes to a Model204 file backup via the DUMP command (rate or total).
ECCALL	Number of External Call Facility calls by user (rate or total).
ECCNCT	Total amount of time External Call Facility subtasks spent running for user (rate or total).
ECCPU	Total amount of CPU used by External Call Facility subtasks on behalf of user (rate or total).
ECCTOUT	Number of External Call Facility calls that timed out for user, that is, did not complete in the time period specified on the EXTERNAL PROGRAM statement (rate or total).
ECCWAITP	Number of External Call Facility calls by user that had to wait for a load module to become available either because it was non-reentrant and it was in use or because the module was being loaded or deleted (rate or total).
ECCWAITS	Number of External Call Facility calls by user that had to wait for a subtask to become available (rate or total).

ECDELETE Number of EXTERNAL DELETE statements executed by user (rate or total).

ECEXCP Total number of I/O's done by External Call Facility subtasks on behalf of user (rate or total).

ECLOAD Number of EXTERNAL LOAD statements executed by user (rate or total).

ECTWAITP Amount of time External Call Facility calls by user that had to wait for a load module to become available either because it was non-reentrant and it was in use or because the module was being loaded or deleted (rate or total).

ECTWAITS Amount of time External Call Facility calls by user spent waiting for a subtask to become available (rate or total).

FBWT Waits for a free Model204 disk page buffer (rate or total).

FINDS User Language FIND statements evaluated (rate or total).

FLGS User flags modifying the thread's current wait. This statistic is displayed in hexadecimal. If the thread is not currently waiting, the flags displayed are the result of the threads most recent wait. The bits in the flag byte have the following meaning :

```
X'80' - Always enter scheduler even if ECB posted
X'40' - The wait is swappable
X'20' - The ECB waited on is an internal ECB
        (posted only by 204)
X'10' - The ECB waited on is a short (single byte)
        internal ECB
X'08' - The ECB waited on can be waited on by more
        than one thread
X'04' - The wait is BUMP'able (the wait will
        complete upon a BUMP)
X'02' - The wait will complete upon receipt of a
        warning
X'01' - The wait has a time limit
```

FSCB High water mark for size of the full screen buffer table in the user's server.

FSCBB High water mark for size in bytes of the full screen buffer table in the user's server. Same as FSCB.

FSCBSW Full screen reads issued or text web responses sent, including Janus Web and Connect* transactions (rate or total).

FTBL High water mark of the size of FTBL in the user's server.

FTBLB High water mark of the size in bytes of FTBL in the user's server. Same as FTBL.

GTBL High water mark for the size of the global variable table in the user's server.

GTBLB High water mark for the size in bytes of the global variable table in the user's server. Same as GTBL.

GTBLRS Number of GTBL rearrangements required to add a non-string global "object", such as an image or screen.

GTBLRU Number of GTBL rearrangements required to add or expand a string global value with $SETG.

HEAP The high water mark of C HEAP used. This represents resources used by the portion of Model 204 written in C (such as the pattern matcher and SQL processor).

IDLETIM Length of time that the system has been waiting for input from the user. Collected in millseconds, SirMon presents in seconds.

IFCALL IFAM calls (rate or total).

IFJOB Name of IFAM job currently connected to the Online thread.

IFSTART IFAM start commands (rate or total).

IFSTEP Name of the current step within the IFAM job currently connected to the Online thread.

IODEV Thread's IODEV number as set in CCAIN stream. Will not change over the course of a run.

```
 1 - User 0 (CCAIN)
 3 - BSAM (sequential dataset)
 7 - VTAM full screen
11 - CRAM full screen
15 - BTAM teletype
23 - Host Language IFAM
27 - HORIZON
29 - CRAM line mode (probably BATCH2)
35 - BTAM local 3270
35 - BTAM local 3270
37 - VTAM 3767 and NTO (MVS only)
39 - IUCV line mode (probably BATCH2, CMS only)
41 - IUCV full screen (CMS only)
43 - IUCV host language IFAM (CMS only)
45 - CMS line mode ALTIODEV
47 - CMS full screen ALTIODEV
```

ITBL	High water mark for the size of ITBL.
ITBLB	High water mark for the size in bytes of ITBL. Same as ITBL.
IXADD	Index entries added to tables C and D, including attempts to add duplicates (rate or total).
IXDEL	Index entries deleted from tables C and D (rate or total).
LONGUPDT	Number of update units that exceeded MAXUD (rate or total).
LONGUTIM	Total milliseconds spent in update units that exceeded MAXUD. (SirMon presents this stat in seconds.)
MOVE	Times Model204 switched from the thread to another thread (rate or total).
MQAPICNT	Number of MQ Series calls excluding MQGETs with WAIT specified (rate or total).
MQAPITIM	Time spent by user in MQ Series calls excluding MQGETs with WAIT specified (rate or total).
MQBYTEIN	Number of bytes received by user with MQ Series MQGET calls (rate or total).
MQBYTEOU	Number of bytes sent by user with MQ Series MQPUT and MQPUT1 calls (rate or total).
MQGETS	Number of MQ Series MQGET calls by user (rate or total).
MQGWTCNT	Number of MQ Series MQGET calls by user with WAIT specified (rate or total).
MQGWTSUC	Number of successful MQ Series MQGET calls by user with WAIT specified (rate or total). Always less than or equal to MQGWTCNT.
MQGWTTIM	Time spent waiting by user for a response from an MQ Series MQGET call that had a non-unlimited time-limit (rate or total). Always less than or equal to MQGWTTSP.
MQGWTTSP	Wait time specified for all MQ Series MQGET calls by user that had a non-unlimited time-limit (rate or total). Always greater than or equal to MQGWTTIM.
MQHWBUFS	High water mark of number of bytes of MQ Series message buffers allocated by user (total).
MQHWQU	High water mark of number of MQ Series queues open by user (total).

MQHWTASK High water mark of number of MQ Series tasks in use by user (total).

MQNUMQM The number of distinct MQ Series queue managers connected to by user over the course of the login session (total).

MQNUMQU The number of distinct MQ Series queues accessed by user over the course of the logon session (total).

MQPUTS Number of MQ Series MQPUT and MQPUT1 calls by user (rate or total).

NTBL High water mark for the size of NTBL.

NTBLB High water mark for the size in bytes of NTBL. NTBLB=NTBL*12.

OBJSWAP SOAP ULI objects must be resident in a server area (VTBL and perhaps STBL) before they can be referenced. If a request accesses more objects than were allocated, objects are swapped from the server to CCATEMP. Rate or total.

OTBL High water mark for the size of all user tables except QTBL, STBL, VTBL, FSCB, NTBL, and VTBL.

OTBLB High water mark for the size in bytes of all user tables except QTBL, STBL, VTBL, FSCB, NTBL, and VTBL.

OUTPB High water mark for the size of the output page buffer.

OUTPBB High water mark for the size in bytes of the output page buffer. Same as OUTPB.

PBRSFLT The number of private buffer reserve faults. A value of 1 may be observed, but the condition results in a user restart, so it should be rare (rate or total).

PBUFRSV The number of private buffers reserved by the user.

PBUFUSE The number of private buffers used by the user.

PCPU Percentage of CPU acquired when the thread was ready to run.

PCPUC CPU total used for PCPU calculations.

PCPUR Time ready to run total used for PCPU calculations.

PDL High water mark for the size of the user push down list.

PDLB High water mark for the size in bytes of the user push down list. Same as PDL.

PFILE Name of the procedure file containing the currently executing or last executed procedure.

PNAME Name of the currently executing or last executed procedure. PNAME can be followed by a number indicating the number of bytes of the procedure name to be displayed and an optional 'L' or 'R' to indicate whether the leftmost or rightmost bytes of the procedure name should be displayed. For example, PNAME20 and PNAME20L would display the leftmost 20 bytes of the procedure name and PNAME9R would display the rightmost 9 bytes of the procedure name. The requested length must be between 6 and 32 inclusive. PNAME is the same as PNAME16L. All procedure names are actually the leftmost 32 or LAUDPROC bytes of the true procedure name whichever is shorter. To save screen space, SIRMON limits the display of PNAME to LAUDPROC bytes, even when the user requests a longer display. The default for LAUDPROC is 21.

PRTY Thread's current priority.

QTBL High water mark for the size of QTBL.

QTBLB High water mark for the size in bytes of QTBL. QTBLB = QTBL * 16.

QUEUTIM Length of time the user has been on the current queue if not waiting for terminal input. A high value for this statistic is indicative of a "hung" user situation. Collected in milliseconds, this stat is displayed by SirMon in seconds.

RCLKBYT Number of bytes currently used in the record locking table by the user. Space is used for both locked and unlocked found sets and lists.

RCLKPAG Number of bitmap pages in CCATEMP currently used to hold locked and unlocked found sets and lists. A non-zero value for RCLKPAG for users in a terminal wait state (WAITTYP = 3) may indicate that users are holding resource enqueues across terminal I/O. This may cause other users to experience performance problems, and may also result in excessively high CCATEMP I/O.

RCLKPL Number of bitmap pages in CCATEMP currently used to hold found sets and lists having either an exclusive or share lock.

RCLKPLE Number of bitmap pages in CCATEMP currently used to hold found sets and lists with exclusive locks.

RCLKPLS Number of bitmap pages in CCATEMP currently used to hold found sets and lists with share locks.

RCLKSL Number of locked single record entries in the record locking table. These include any records locked in either share or exclusive mode. RCLKSL = RCLKSLE + RCLKSLS.

RCLKSLE Number of locked single record entries in the record locking table, locked in exclusive mode.

RCLKSLS Number of locked single record entries in the record locking table, locked in share mode.

RCLKSRE Number of single record entries in the record locking table. Single record entries are associated with locked individual records such as used in a FOR RECORD NUMBER statement, or the exclusive lock obtained on a record being updated in a FOR EACH RECORD loop.

RECADD Records started in table B not including extension records (rate or total).

RECDEL Records deleted from table B not including extension records (rate or total).

RECDS Records processed by FOR loops, SORTs, IFGETs, or IFPOINTS (rate or total).

REDY Percentage of performance samples in which the thread was ready to run. Always 0 if the performance subtask is not active. (10 = 10%, etc.).

REDYA Performance statistic: same as REDY but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

REDYT Performance statistic: same as REDY but calculated across all performance monitoring samples since the beginning of the run.

REQ Requests (including DISPLAY commands) executed (rate or total). If this value is non-zero over an interval, the user has exited the proc he was running at the start of the interval.

RESPTIM Length of time the user has been waiting for a response from the system since entering his/her last input. This statistic currently always returns a 0.

REST Reads from a Model204 backup file via the RESTORE command (rate or total).

RUNG Percentage of performance samples in which the thread was running. Always 0 if the performance subtask is not active. (10 = 10%, etc.).

RUNGA Performance statistic: same as RUNG but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

RUNGT Performance statistic: same as RUNG but calculated across all performance monitoring samples since the beginning of the run.

SCHDCPU Scheduler CPU used by user (always 0 unless SCHDOPT 1 bit set).

SCREENS Full screen reads issued or text web responses sent, including Janus Web and Connect* transactions (rate or total).

SGMTI Input lines from INCLUDE'd procedures (rate or total).

SGMTO Output lines to procedures defined by the user (rate or total).

SLBADD "Since-Last" version of BADD (field values added to Table B). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBCHG "Since-Last" version of BCHG (field values changed in Table B). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBDEL "Since-Last" version of BDEL (field values deleted in Table B). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBKOUTS Number of update units backed out within the current work unit. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBXCHG "Since-Last" version of BXCHG (changes to the ordered index). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBXDEL "Since-Last" version of BXDEL (deletions in the ordered index). Since-Last stats reflect activity in the current work unit. When the work unit

(typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBXFND "Since-Last" version of BXFND (ordered index finds). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBXFRE "Since-Last" version of BXFRE (ordered index nodes emptied). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBXINS "Since-Last" version of BXFRE (ordered index entries inserted). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBXNXT "Since-Last" version of BXNEXT (ordered index values touched during range retrievals). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBXRFD "Since-Last" version of BXRFND (ordered index range retrievals). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLBXSPL "Since-Last" version of BXRFND (ordered index node splits). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLCMMITS Number of update units commits within the current work unit. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLCNCT "Since-Last" stat for time spent in work unit. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to

the journal and reset to 0. The WHAT stat contains the work unit type. This stat is collected in milliseconds but presented by SirMon in seconds.

SLCPU "Since-Last" stat for CPU consumed while in current work unit. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLDIRRC "Since-Last" count for number of records searched directly. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLDKPR "Since-Last" page requests. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLDKRD "Since-Last" page reads. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLDKWR "Since-Last" page writes. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLECCALL "Since-Last" External Call Facility calls. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECCALL stat.

SLECCNCT "Since-Last" External Call Facility subtask run time. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECCNCT stat.

SLECCPU "Since-Last" External Call Facility subtask CPU time. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECCPU stat.

SLECCTO "Since-Last" External Call Facility timeouts. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECCTOUT stat.

SLECCWTP "Since-Last" External Call Facility waits for load module. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECCWAITP stat.

SLECCWTS "Since-Last" External Call Facility waits for available subtask. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECCWAITS stat.

SLECDEL "Since-Last" External Call Facility load module deletes. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECDELETE stat.

SLECEXCP "Since-Last" External Call Facility subtask IO's. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECEXCP stat.

SLECLOAD "Since-Last" External Call Facility load module loads. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECLOAD stat.

SLECTWTP "Since-Last" External Call Facility time waiting for load module. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECTWAITP stat.

SLECTWTS "Since-Last" External Call Facility time waiting for available subtask. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the ECTWAITS stat.

SLFINDS "Since-Last" FIND statements executed. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLGTBLRS Number of GTBL rearrangements required to add a non-string global "object", such as an image or screen.

SLGTBLRU Number of GTBL rearrangements required to add or expand a string global value with $SETG.

SLIC Times user was time sliced (rate or total).

SLIN "Since-Last" terminal input lines. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLIXADD "Since-Last" index entries added. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLIXDEL "Since-Last" index entries deleted. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLLONGUP Number of update units within the current work unit that exceeded the MAXUD parameter. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLLONGUT Total milliseconds within the current work unit spent in update units that exceeded the MAXUD parameter. (SirMon presents this stat in seconds). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLMQAPIC "Since-Last" MQ Series calls excluding MQGETs with WAIT. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQAPICNT stat.

SLMQAPIT "Since-Last" MQ Series time in calls excluding MQGET with WAIT. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQAPICNT stat.

SLMQBYTI "Since-Last" MQ Series bytes received by MQGET calls. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQBYTEIN stat.

SLMQBYTO "Since-Last" MQ Series bytes sent by MQPUT and MQPUT1 calls. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQBYTEOU stat.

SLMQGETN "Since-Last" total number of MQGETS performed with a wait option that actually returned a message, excluding WAIT_TIME=UNLIMITED MQ gets.

SLMQGETW "Since-Last" MQ Series MQGET calls. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQCGETS stat.

SLMQGTSP "Since-Last" MQ Series wait time specified for MQGET calls. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQGWTTSP stat.

SLMQGWTC "Since-Last" MQ Series MQGET calls with WAIT specified. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQGWTCNT stat.

SLMQGWTS "Since-Last" MQ Series successful MQGET calls with WAIT specified. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQGWTSUC stat.

SLMQGWTT "Since-Last" MQ Series time waiting for MQGETs with WAIT specified. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQGWTTIM stat.

SLMQHWBF "Since-Last" high water mark of MQ Series buffer bytes allocated. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQHWBUFS stat.

SLMQHWQU "Since-Last" high water mark of MQ Series queues open. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQHWQU stat.

SLMQHWTK "Since-Last" high water mark of MQ Series tasks used. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQHWTASK stat.

SLMQNMQM "Since-Last" distinct MQ Series queue managers connected to. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQNUMQM stat.

SLMQNMQU "Since-Last" distinct MQ Series queues accessed. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQNUMQU stat.

SLMQPUTS "Since-Last" MQ Series MQPUT and MQPUT1 calls. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQPUTS stat.

SLOBSWP Since-Last value of OBJSWAP, number of SOAP ULI object swaps from CCATEMP to a server container. Rate or total.

SLOUT "Since-Last" number of terminal output lines. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLRADD "Since-Last" count of records started in Table B. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLRDEL "Since-Last" count of records deleted from Table B. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLRECDS "Since-Last" records processed in FORs, SORTs, IFGETS or IFPOINTS. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLRQTM "Since-Last" time elapsed for activity, exclusive of terminal I/O. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This stat is collected in milliseconds but presented by SirMon in seconds.

SLSCHDC "Since-Last" scheduler CPU. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLSCRNS "Since-Last" full screen reads or text web responses. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLSLIC "Since-Last" number of times user was time-sliced. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLSORTS "Since-Last" number of User Language SORT statements. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLSTCPU "Since-Last" sub-task CPU. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLSTDEQ "Since-Last" number of times dequeued from maintask to subtask. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLSTREC "Since-Last" number of records processed by SORT statements. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLSVPAG "Since-Last" number of server pages read or written. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLSVRD "Since-Last" number of server reads. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLSVWR "Since-Last" number of server writes. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLUBUFHW "Since-Last" high water mark of Universal Buffer bytes allocated. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type. This is the since-last equivalent of the MQHWBUFS stat.

SLUDD "Since-Last" number of directed output dataset lines written. Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SLUPDTTM Total milliseconds within the current work unit spent updating at least one file. (SirMon presents as seconds). Since-Last stats reflect activity in the current work unit. When the work unit (typically a compilation or evaluation) completes, the Since-Last stats are output to the journal and reset to 0. The WHAT stat contains the work unit type.

SMPLS	Number of samples during which the user was active. Always 0 if the performance monitoring subtask is not active.
SMPLSC	Performance statistic: same as SMPLS but for report currently being calculated.
SMPLST	Performance statistic: same as SMPLS but calculated since the beginning of the run.
SORTS	User Language SORT statements evaluated (rate or total).
SQIO	Terminal input and output lines (rate or total). SQIO = SQRD + SQWR
SQLI	High water mark for bytes of the SQL input buffer used.
SQLO	High water mark for bytes of the SQL output buffer used.
SQRD	Terminal input lines (rate or total). A good estimater for the number of screens processed by a user on a full screen IODEV.
SQWR	Terminal output lines (rate or total).
STATE	Current user state (RUNG, REDY, SPWG, WTSV, OFFQ, BLKI, or BLKO).
STBL	High water mark for the size of STBL.
STBLB	High water mark for the size in bytes of STBL. Same as STBL.
STCPU	Amount of CPU used in an offload subtask (rate or total).
STDEQ	Number of times user was transferred from the maintask (task 0) to an offload subtask under MP (rate or total).
STRECDS	Records processed by SORT statements (rate or total).
SUBSYS	Name of the current subsystem being executed by the user.
SVIO	Server reads and writes (rate or total). SVIO = SVRD + SVWR.
SVPAGES	Number of 4K pages of server data swapped in or out by M204.
SVRD	Server reads (rate or total).
SVSIZE	Current server size requirement based on UTABLE settings.
SVSIZEA	Size of the actively used part of a thread's server. This will always equal SVSIZE unless the thread is using a resident (shared) QTBL in which case SVSIZEA = SVSIZE - QTBLB.

SVSIZEC	Size of the server being currently occupied by the thread. SVSIZEC is set to 0 if the user is not currently in a server.
SVWR	Server writes (rate or total).
SWPG	Percentage of samples in which the user was in transit to or from a server. Always 0 if performance subtask is not active (10 = 10%, etc.)
SWPGA	Performance statistic: same as SWPG but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.
SWPGT	Performance statistic: same as SWPG but calculated across all performance monitoring samples since the beginning of the run.
TERMID	User's terminal ID.
TTBL	High water mark for the size of TTBL.
TTBLB	High water mark for the size in bytes of TTBL. Same as TTBL.
UBALLOC	Size of currently allocated Universal Buffer, in byte.
UBUFHWS	High water mark of Universal Buffer bytes allocated.
UBUSED	Number of bytes currently used in Universal Buffer.
UDD	Output lines written to a directed output (USE) data set (rate or total).
UPDTTIME	Total milliseconds user has spent, since logon, updating at least one file (SirMon presents this stat in seconds).
VTBL	High water mark for the size of VTBL.
VTBLB	High water mark for the size in bytes of VTBL. VTBLB = VTBL * 32
WAIT	Real single user waits when this thread was current (rate or total).
WAITCFR	The critical file resource currently being waited on by the thread. This can be DRCT, INDX, EXST or RCNQ for the Direct, Index, Exists and Recenq resources respectively. If a user is not waiting for a critical file resource (wait type is not 24 or 25), this simply returns blanks.
WAITDSC	Returns a 12 character description of what the user is waiting on. ENQ waits are broken into more informative descriptions (RECLOCK, FIR-UPDATE, CFR-INDEX, etc.) and ARBMO wait types are broken into CHKPO or JRNLO depending on whether the wait is journal or checkpoint related. Blanks are returned if user is not waiting.

WAITECB Returns a 16 character description of the data structure and offset that a thread is waiting on. Internal debugging experts use this information when the source of a wait cannot be identified by WAITDSC. WAITECB returns blanks if a user is not waiting.

WAITFIL Name of file causing current wait. If the thread is not currently waiting or the current wait is not associated with a file, this contains blanks.

WAITTIM Time spent in the current wait - collected in milliseconds, SirMon presents this stat in seconds.

WAITTYP Type of the current wait. This contains the value of the current wait type flag, and in some displays, a short description. WAITTYP values have the following meanings:

```
 0 = Not waiting          56 = Subtran CP scanner
 1 = Disk I/O             57 = Wait type 57
 2 = Seq. I/O output      58 = Wait type 58
 3 = Seq. I/O input       59 = Wait type 59
 4 = Operator console     60 = Wait type 60
 5 = Dump writes          61 = Wait type 61
 6 = Restore reads        62 = Wait type 62
 7 = Enqueue waits        63 = Softspy server
 8 = Buffer waits         64 = Softspy user
 9 = Deactivated          65 = Wait type 65
10 = Subtask/Hung         66 = Wait type 66
11 = IFAM2/4 call         67 = Wait type 67
12 = Wakeup               68 = Wait type 68
13 = Server I/O           69 = Wait type 69
14 = Undefined            70 = Wait type 70
15 = Journal write        71 = Wait type 71
16 = Chkpt write          72 = Wait type 72
17 = Chkpt prev write     73 = Wait type 73
18 = Chkpt DECB wait      74 = Wait type 74
19 = Chkpt request        75 = Wait type 75
20 = Chkpt completion     76 = Fast/Unload request
21 = Dead user            77 = Wait type 77
22 = VSAM/Seq. input      78 = Wait type 78
23 = Login pending        79 = Wait type 79
24 = Exclusive CFR        80 = Cust. wait type 0
25 = Share CFR            81 = Cust. wait type 1
26 = VTAM buffer          82 = Cust. wait type 2
27 = Interprocess input   83 = Cust. wait type 3
28 = Interprocess output  84 = Cust. wait type 4
29 = Security interface   85 = Cust. wait type 5
30 = $Wait swappable      86 = Cust. wait type 6
31 = $Wait non-swap       87 = Cust. wait type 7
32 = DB2 subtask          88 = Cust. wait type 8
33 = unused               89 = Cust. wait type 9
34 = unused               90 = Wait type 90
35 = unused               91 = Wait type 91
36 = unused               92 = Wait type 92
37 = unused               93 = Wait type 93
38 = Softspy server       94 = Wait type 94
39 = Softspy user         95 = Wait type 95
40 = MQ/204 task avail    96 = Wait type 96
41 = MQ/204 task to run   97 = Fast/Unload request
42 = MQGET with time      98 = MAXAUSER delay
43 = ECF Load/Delete      99 = SirFact quiesce
44 = ECF program wait    100 = Wait type 100
45 = ECF task wait       101 = Wait type 101
46 = ECF run wait        102 = Wait type 102
47 = wait type 47        103 = Wait type 103
48 = wait type 48        104 = Wait type 104
49 = wait type 49        105 = Wait type 105
50 = HSM recall          106 = Wait type 106
51 = DB lock share       107 = Wait type 107
52 = DB lock excl.       108 = Wait type 108
```

```
53 = Subtran CP process   109 = Wait type 109
54 = Subtran CP postpone  110 = unused
55 = Subtran CP CPTS      111 = unused
```

WAITU User Number of the user that this user is waiting on. This stat reflects valid user numbers for ENQ, CFRQEX and CFRQSH wait types. The user may be waiting on a number of other users, but SIRMON will only reflect the first one encountered.

WHAT Type of the current activity (LOAD, COMP, EVAL, etc.).

WT

Type of the current wait. This contains the value of the current wait type flag. Same as WAITTYPE. Values have the following meanings.

```
 0 = Not waiting          56 = Subtran CP scanner
 1 = Disk I/O             57 = Wait type 57
 2 = Seq. I/O output      58 = Wait type 58
 3 = Seq. I/O input       59 = Wait type 59
 4 = Operator console     60 = Wait type 60
 5 = Dump writes          61 = Wait type 61
 6 = Restore reads        62 = Wait type 62
 7 = Enqueue waits        63 = Softspy server
 8 = Buffer waits         64 = Softspy user
 9 = Deactivated          65 = Wait type 65
10 = Subtask/Hung         66 = Wait type 66
11 = IFAM2/4 call         67 = Wait type 67
12 = Wakeup               68 = Wait type 68
13 = Server I/O           69 = Wait type 69
14 = Undefined            70 = Wait type 70
15 = Journal write        71 = Wait type 71
16 = Chkpt write          72 = Wait type 72
17 = Chkpt prev write     73 = Wait type 73
18 = Chkpt DECB wait      74 = Wait type 74
19 = Chkpt request        75 = Wait type 75
20 = Chkpt completion     76 = Fast/Unload request
21 = Dead user            77 = Wait type 77
22 = VSAM/Seq. input      78 = Wait type 78
23 = Login pending        79 = Wait type 79
24 = Exclusive CFR        80 = Cust. wait type 0
25 = Share CFR            81 = Cust. wait type 1
26 = VTAM buffer          82 = Cust. wait type 2
27 = Interprocess input   83 = Cust. wait type 3
28 = Interprocess output  84 = Cust. wait type 4
29 = Security interface   85 = Cust. wait type 5
30 = $Wait swappable      86 = Cust. wait type 6
31 = $Wait non-swap       87 = Cust. wait type 7
32 = DB2 subtask          88 = Cust. wait type 8
33 = unused               89 = Cust. wait type 9
34 = unused               90 = Wait type 90
35 = unused               91 = Wait type 91
36 = unused               92 = Wait type 92
37 = unused               93 = Wait type 93
38 = Softspy server       94 = Wait type 94
39 = Softspy user         95 = Wait type 95
40 = MQ/204 task avail    96 = Wait type 96
41 = MQ/204 task to run   97 = Fast/Unload request
42 = MQGET with time      98 = MAXAUSER delay
43 = ECF Load/Delete      99 = SirFact quiesce
44 = ECF program wait    100 = Wait type 100
45 = ECF task wait       101 = Wait type 101
46 = ECF run wait        102 = Wait type 102
47 = wait type 47        103 = Wait type 103
48 = wait type 48        104 = Wait type 104
49 = wait type 49        105 = Wait type 105
50 = HSM recall          106 = Wait type 106
51 = DB lock share       107 = Wait type 107
52 = DB lock excl.       108 = Wait type 108
53 = Subtran CP process  109 = Wait type 109
```

```
54 = Subtran CP postpone  110 = unused
55 = Subtran CP CPTS      111 = unused
```

WTCFR Number of times this user has had to wait for a critical file resource. Only available if CFRLOOK=1 (rate or total).

WTRLK Number of times this user has had to wait because of a record lock. Only available if CFRLOOK=1 (rate or total).

WTSV Percentage of samples in which the user was waiting for a server. Always 0 if the performance subtask is not active (10 = 10%, etc.).

WTSVA Performance statistic: same as WTSV but calculated by weighting samples in the current performance interval with the latest report finished by the performance monitoring subtask.

WTSVT Performance statistic: same as WTSV but calculated across all performance monitoring samples since the beginning of the run.

XPNT Number of XPath nodetests performed since user logged on. This is used by Technical Support for debugging purposes.

XTBL High water mark for the size of XTBL.

XTBLB High water mark for the size in bytes of XTBL. Same as XTBL.

APPENDIX C File statistics definitions

File statistics provide information about each file currently open in the Online system. The value of each file statistic is determined by the activity against that file within the Online.

ASIZE Size of table A in number of pages.

ASTRPPG Table A strings per page.

ATRPG Number of attribute pages in Table A.

BACKOUTS Number of backed out update units since the file was opened. The stat begins incrementing when the file is first opened, and is reset to 0 when the last user closes it. If the file is reopened the incrementing begins again from 0 (rate or total).

BADD Fields added to Table B (rate or total).

BCHG Fields changed in place in Table B (rate or total).

BDEL Fields deleted from table B (rate or total).

BFULLP Estimate of the percentage of table B that is full. This statistic is equal to the table B highest active page (BHIGHPG) divided by the total number of table B pages (BSIZE).

BHIGHPG The current table B high water mark. Same as the Model204 BHIGHPG parameter.

BLOWPG The lowest active table B page. Same as the Model204 BLOWPG parameter.

BQLEN The number of pages in the table B reuse queue. Same as the Model204 BQLEN parameter.

BRECPPG Maximum number of records per Table B page.

BRESERVE The amount of space in bytes on a Table B page on which new records cannot be started. The space is reserved for the expansion of existing records on the Table B page.

BREUSED The number of records added to the file that reused the record number of a previously deleted record. Same as the Model204 BREUSED parameter.

BSIZE Size of table B in number of pages.

BUFF. Total number of pages in the disk buffer pool currently occupied by pages from all tables in the database file. Equal to BUFFF + BUFFA + BUFFB + BUFFC + BUFFD + BUFFE + BUFFX.

BUFF.G Total number of above-the-bar pages in the disk buffer pool occupied by pages from all tables in the database file. Equal to BUFFFG + BUFFAG + BUFFBG + BUFFCG + BUFFDG + BUFFEG + BUFFXG. Above-the-bar buffers reside at virtual addresses above two gigabytes and are only used when the NUMBUFG parameter is set to a non-zero value under Model 204 V6R2 or later.

BUFF.L Total number of below-the-bar pages in the disk buffer pool occupied by pages from all tables in the database file. Equal to BUFFFL + BUFFAL + BUFFBL + BUFFCL + BUFFDL + BUFFEL + BUFFXL. Below-the-bar buffers reside at virtual addresses below two gigabytes. BUFF.L has the same value as BUFF. unless the NUMBUFG parameter is set to a non-zero value under Model 204 V6R2 or later.

BUFFA Total number of pages in the disk buffer pool currently occupied by table A pages from the database file.

BUFFAG Total number of above-the-bar pages in the disk buffer pool currently occupied by table A pages from the database file.

BUFFAL Total number of below-the-bar pages in the disk buffer pool currently occupied by table A pages from the database file.

BUFFB Total number of pages in the disk buffer pool currently occupied by table B pages from the database file.

BUFFBG Total number of above-the-bar pages in the disk buffer pool currently occupied by table B pages from the database file.

BUFFBL Total number of below-the-bar pages in the disk buffer pool currently occupied by table B pages from the database file.

BUFFC Total number of pages in the disk buffer pool currently occupied by table C pages from the database file.

BUFFCG Total number of above-the-bar pages in the disk buffer pool currently occupied by table C pages from the database file.

BUFFCL Total number of below-the-bar pages in the disk buffer pool currently occupied by table C pages from the database file.

BUFFD Total number of pages in the disk buffer pool currently occupied by table D pages from the database file. Note that CCATEMP pages are listed as being in table D, though they're not really table D. Note also that in the system buffer usage statistics, CCATEMP pages are not included in the table D totals and are instead included in a separate value called BUFFT.

BUFFDG Total number of above-the-bar pages in the disk buffer pool currently occupied by table D pages from the database file. Note that CCATEMP pages are listed as being in table D, though they're not really table D. Note also that in the system buffer usage statistics, CCATEMP pages are not included in the table D totals and are instead included in a separate value called BUFFTG.

BUFFDL Total number of below-the-bar pages in the disk buffer pool currently occupied by table D pages from the database file. Note that CCATEMP pages are listed as being in table D, though they're not really table D. Note also that in the system buffer usage statistics, CCATEMP pages are not included in the table D totals and are instead included in a separate value called BUFFTL.

BUFFE Total number of pages in the disk buffer pool currently occupied by Table E pages from the database file.

BUFFEG Total number of above-the-bar pages in the disk buffer pool currently occupied by table E pages from the database file.

BUFFEL Total number of below-the-bar pages in the disk buffer pool currently occupied by table E pages from the database file.

BUFFF Total number of pages in the disk buffer pool currently occupied by FCT pages from the database file.

BUFFFG Total number of above-the-bar pages in the disk buffer pool currently occupied by FCT pages from the database file.

BUFFFL Total number of below-the-bar pages in the disk buffer pool currently occupied by FCT pages from the database file.

BUFFX Total number of pages in the disk buffer pool currently occupied by Table X pages from the database file.

BUFFXG Total number of above-the-bar pages in the disk buffer pool currently occupied by table X pages from the database file.

BUFFXL Total number of below-the-bar pages in the disk buffer pool currently occupied by table X pages from the database file.

BUFM. Total number of pages in the disk buffer pool currently occupied by modified pages from all tables in the database file. Equal to BUFMF + BUFMA + BUFMB + BUFMC + BUFMD + BUFME + BUFMX.

BUFMA Total number of pages in the disk buffer pool currently occupied by modified table A pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMAG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table A pages from the database file. These must pages be written to disk before they can be flushed from the buffer pool.

BUFMAL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table A pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMB Total number of pages in the disk buffer pool currently occupied by modified table A pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMBG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table B pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMBL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table B pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMC Total number of pages in the disk buffer pool currently occupied by modified table A pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool. Total number of pages in the disk buffer pool currently occupied by modified table A pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMCG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table C pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMCL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table C pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMD Total number of pages in the disk buffer pool currently occupied by modified table A pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool. Note that CCATEMP pages are listed as being in table D, though they're not really table D. Note also that in the system buffer usage statistics, CCATEMP pages are not included in the table D totals and are instead included in a separate value called BUFMT.

BUFMDG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table D pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool. Note that CCATEMP pages are listed as being in table D, though they're not really table D. Note also that in the system buffer usage statistics, CCATEMP pages are not included in the table D totals and are instead included in a separate value called BUFMTG.

BUFMDL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table D pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool. Note that CCATEMP pages are listed as being in table D, though they're not really table D. Note also that in the system buffer usage statistics, CCATEMP pages are not included in the table D totals and are instead included in a separate value called BUFMTL.

BUFME Total number of pages in the disk buffer pool currently occupied by modified table E pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMEG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table E pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMEL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table E pages from the database file. These pages be must written to disk before they can be flushed from the buffer pool.

BUFMF Total number of pages in the disk buffer pool currently occupied by FCT pages from the database file. These pages must be written to to disk before they can be flushed from the buffer pool.

BUFMFG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified FCT pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMFL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified FCT pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMX Total number of pages in the disk buffer pool currently occupied by modified table X pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMXG Total number of above-the-bar pages in the disk buffer pool currently occupied by modified table X pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFMXL Total number of below-the-bar pages in the disk buffer pool currently occupied by modified table X pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

BUFPAGA Total number of pages in the disk buffer pool currently occupied by table A pages from the database file.

BUFPAGB Total number of pages in the disk buffer pool currently occupied by table B pages from the database file.

BUFPAGC Total number of pages in the disk buffer pool currently occupied by table C pages from the database file.

BUFPAGD Total number of pages in the disk buffer pool currently occupied by table D pages from the database file.

BUFPAGE Total number of pages in the disk buffer pool currently occupied by pages from all tables in the database file. Equal to BUFPAGA + BUFPAGB + BUFPAGC + BUFPAGD + BUFPAGF + BUFPAGL + BUFPAGX + the number of table X pages which can be obtained via the BUFFX statistic.

BUFPAGF Total number of pages in the disk buffer pool currently occupied by FCT pages from the database file.

BUFPAGL Total number of pages in the disk buffer pool currently occupied by Table E pages from the database file. The L stands for LOBs, or large objects, which is what is stored in table E.

BUFPAGX Total number of pages in the disk buffer pool currently occupied by pages from CCATEMP. Note: these are *not* pages from table X. The preferred set of buffer usage statistics that includes the table X pages is the sets of stats that begin with the letters "BUFF".

BXCHNG New segments of records starting or local lists deleted in the ordered index (rate or total).

BXDELE Removals from tree structure in the ordered index. (rate or total).

BXFIND	Searches to locate FIELD NAME = VALUE pairs in the ordered index (rate or total).
BXFREE	Nodes emptied in the ordered index (rate or total).
BXINSE	New records inserted with an unused FIELD NAME = VALUE pair in the ordered index (rate or total).
BXNEXT	FIELD NAME = VALUE pairs touched in the ordered index during range retrievals (rate or total).
BXRFND	Calls for range retrieval from the ordered index (rate or total).
BXSPLI	Node splits in the ordered index (rate or total).
CFRCDEX	Conflicts on the "DIRECT" and "EXISTS" critical file resources (rate or total). Equal to CFRCDIR+CFRCEXS.
CFRCDIR	Conflicts on the "DIRECT" critical file resource (rate or total). This resource protects the integrity of Table B.
CFRCEXS	Conflicts on the "EXISTS" critical file resource (rate or total). This resource protects the integrity of the existence bit map.
CFRCIND	Conflicts on the "INDEX" critical file resource (rate or total). This resource protects the integrity of the database indexes.
CFRCONF	Conflicts on all critical file resources (rate or total).
CFRCREC	Conflicts on the "RECENQ" critical file resource (rate or total). This resource protects the integrity of the record enqueuing tables.
CFRQDEX	Number of users waiting for either the "DIRECT" or "EXISTS" critical file resource. Equal to CFRQDIR+CFRQEXS.
CFRQDIR	Number of users waiting for the "DIRECT" critical file resource. This resource protects the integrity of table B.
CFRQEXS	Number of users waiting for the "EXISTS" critical file resource. This resource protects the integrity of the existence bit map.
CFRQIND	Number of users waiting for the "INDEX" critical file resource. This resource protects the integrity of the database indexes.
CFRQREC	Number of users waiting for the "RECENQ" critical file resource. This resource protects the integrity of the record enqueuing tables.
CFRQUEU	Number of users waiting for any critical file resource.

COMMITS Number of committed update units since the file was opened. The stat begins incrementing when the file is first opened, and is reset to 0 when the last user closes it. If the file is reopened the incrementing begins again from 0. (rate or total.)

CSIZE Size of table C in number of pages.

DFULLP Percentage of table D that is full. This statistic is equal to the number of table D pages currently in use (DPGSUSED) divided by the total number of table D pages (DSIZE).

DHIGHPG The current table D high water mark. Same as the Model204 DHIGHPG parameter.

DIRRCD Number of records scanned in direct searches (rate or total).

DKIO Physical page reads/writes to/from the Model204 database file (rate or total). This value is equal to DKRD + DKWR.

DKRD Physical pages reads from the Model204 database file (rate or total).

DKUPTIME Number of milliseconds spent writing a file's pages to disk, and marking it "physically consistent". It includes time writing pages even if the disk update was interrupted. This stat is presented by SirMon in seconds.

DKWR Physical page writes to Model204 database file (rate or total).

DPGSUSE The current number of table D pages in use. Same as the Model204 DPGSUSED parameter.

DSIZE Size of table D in number of pages.

DUPDTS Records written to the deferred update data set for the Model204 database file (rate or total).

EFULLP Percentage of table E that is full. This statistic is equal to the number of table E pages currently in use (EPGSUSED) divided by the total number of table E pages (ESIZE).

EHIGHPG The current table E high water mark. Same as the Model204 EHIGHPG parameter.

ENQEXC Total number of users and subsystems that have the database file opened in update mode.

ENQSHR Total number of users and subsystems that have the database file opened in read/only mode.

EOVFADD Number of records added to the extra overflow areas. Same as the Model204 EOVFLADD parameter (rate or total).

EOVFDEL Number of deleted from to the extra overflow areas. Same as the Model204 EOVFLDEL parameter (rate or total).

EPGSUSE The current number of table E pages in use. Same as the Model204 EPGSUSED parameter.

ESIZE Size of table E in number of pages.

EXTNADD Number of extension records added to table B. Same as the Model204 EXTNADD parameter (rate or total).

EXTNDEL Number of extension records deleted from table B. Same as the Model204 EXTNDEL parameter (rate or total).

FCTB Total number of pages in the disk buffer pool currently occupied by FCT pages from the database file.

FCTM Total number of pages in the disk buffer pool currently occupied by modified FCT pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

FICREATE Release of Model 204 in which the file was created. Values are:

```
0     - Release 7.1 or earlier release of Model 204
1     - Release 8.0 of Model 204
2     - Release 8.1 of Model 204
3     - Release 9.0 (or later) of Model 204
4     - Version 2 Release 2 (or later) of Model 204 and
also
        has a non-zero setting of FILEMODL parameter.
5     - Version 3 Release 2 (or later) of Model 204 and
also
        has a non-null setting of LANGFILE parameter.
6     - Version 6 Release 1 (or later) of Model 204.
7     - Version 6 Release 2 (or later) of Model 204.
8     - Version 6 Release 3 (or later) of Model 204.
```

FIFLAGS Summed hex value representing file status detail. Valid settings are sums of the following values:

```
X'80' - Group index entry required (sorted files).
X'40' - Table B appends page full.
X'20' - Currently active Table D inversion page
        full.
X'10' - Field level constraints (file has at least
        one field with a UNIQUE attribute).
X'08' - New Table C logic for initial property
        entry.
X'04' - Ordered Index list page full.
X'01' - File is post release 3.16.
```

FILEORG Summed hex value representing the organization of Table B. Valid settings are sums of the following values:

```
X'40' - File skewing is enabled.
X'20' - Unordered file.
X'08' - Hash key file.
X'04' - Reuse Record Number file (RRN).
X'02' - Sort or hash key required in every record.
X'01' - Sorted file.
X'00' - Entry order file.
```

FISTAT The current value of the database file's status byte. Same as the Model204 FISTAT parameter. Values can be summed:

```
X'40' - File might be logically inconsistent.
X'20' - File is in deferred update mode.
X'10' - File has been recovered.
X'08' - File is full.
X'02' - File is physically inconsistent.
X'01' - File is not initialized.
```

Model204 FISTAT parameter.

FOPT Summed hex value representing file options, as follows:

```
X'80' - Prohibit statement numbers in procedures.
X'40' - Prohibit statement labels in procedures.
X'08' - Append-first mode in RDFS file.
X'02' - Disable lock pending updates.
X'01' - Disallow new field name definitions.
X'00' - Allow labels and statement numbers in
        procedures.
```

FRCVOPT Summed hex value indicating file recovery options, as follows:

```
X'80' - Updates not allowed without roll forward
        active.
X'40' - Updates not allowed unless checkpointing
        active.
X'20' - File does not participate in
        checkpointing.
X'10' - Discontinuities not allowed.
X'08' - Transaction backout disabled.
X'04' - File does not take part in roll forward
        logging.
X'02' - File does not participate in roll forward.
X'01' - Transaction boundaries are ignored when
        applying roll forward updates.
```

FREESIZ Number of unassigned pages in the database file. Same as the Model204 FREESIZE parameter.

FVFPG Number of Table A pages used for storing the values from "few valued" coded fields.

HIGHSRT Record number containing the highest sort key. Same as the Model204 HIGHSORT parameter.

IXADD Index entries added to tables C and D, including attempts to add duplicates (rate or total).

IXDEL Index entries deleted from tables C and D (rate or total).

MODPAGA Total number of pages in the disk buffer pool currently occupied by modified table A pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

MODPAGB Total number of pages in the disk buffer pool currently occupied by modified table B pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

MODPAGC Total number of pages in the disk buffer pool currently occupied by modified table C pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

MODPAGD Total number of pages in the disk buffer pool currently occupied by modified table D pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

MODPAGE Total number of pages in the disk buffer pool currently occupied by modified pages from all tables in the database file. These pages must be written to disk before they can be flushed from the buffer pool. Equal to MODPAGA + MODPAGB + MODPAGC + MODPAGD + MODPAGF + MODPAGL.

MODPAGF Total number of pages in the disk buffer pool currently occupied by modified FCT pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool.

MODPAGL Total number of pages in the disk buffer pool currently occupied by modified table E pages from the database file. These pages must be written to disk before they can be flushed from the buffer pool. The L stands for LOBs, or large objects, which is what is stored in table E.

MODPAGX Total number of pages in the disk buffer pool currently occupied by modified pages from CCATEMP. Note: these are *not* modified pages from table X. The preferred set of buffer usage statistics that includes the table X pages is the sets of stats that begin with the letters "BUFM".

MSTRADD Number of records added to table B. Same as the Model204 MSTRADD parameter (rate or total).

MSTRDEL Number of records physically deleted from table B. Same as the Model204 MSTRDEL parameter (rate or total).

MVFPG Number of Table A pages used for storing the values from "many valued" coded fields.

NDPU The current number of table D pages in use. Same as the Model204 DPGSUSED parameter.

NPTA Size of table A in pages. Same as ASIZE.

NPTB Size of table B in pages. Same as BSIZE.

NPTC Size of table C in pages. Same as CSIZE

NPTD Size of table D in pages. Same as DSIZE.

NPTE Size of table E in pages. Same as ESIZE.

NPTF Size of FCT in pages.

NRECEXT Number of extension records currently in table B.

NRECMAS Number of master records currently in table B.

NRECOVF Number of records currently in overflow areas in table B.

NRECSPL Number of records currently in spill areas in table B.

NREQ Current number of active transactions which reference the file.

NUPD Current number of active transactions which update the file.

OIDEPTH Number of Ordered Index B-tree levels (depth of the B-tree).

OILEAFP Percentage of ordered index leaf pages that contain data. OILEAFP = 100 * (OINBYTS / OILEAVS) / PAGESZ. In general, the higher this value, the better. After a reorg, this value will generally be close to 100 - LRESERV. A value close to 50 or lower is a sign of relatively low ordered index density and suggests a reorg.

OILEAVS The number of Ordered Index B-tree leaf-level nodes. The number of Table D pages used for the B-tree leaves.

OILPACT Page number of the Order Index B-tree page which is active.

OINBYTS Number of Ordered Index B-tree entry bytes. .

OINENTR The number of distinct field name = value pairs stored in the Ordered Index B-tree.

OINODEP Percentage of ordered index node pages that contain data. OINODEP = 100 * (OINBYTS / OINODES) / PAGESZ. In general, the higher this value, the better. After a reorg, this value will generally be close to 100 - LRESERV. A value close to 50 or lower is a sign of relatively low ordered index density and suggests a reorg. This value will usually be close to OILEAFP except in the case where there are few leaf nodes per higher level nodes. This situation would suggest a reorg.

OINODES The number of Ordered Index B-tree nodes. The total number of Table D pages used for the Ordered Index B-tree.

OPENCTL PUBLIC, PRIVATE or SEMIPUBLIC status of file.

OVFLADD Number of records added to overflow areas in table B. Same as the Model204 OVFLADD parameter (rate or total).

OVFLDEL Number of records deleted from overflow areas in table B. Same as the Model204 OVFLDEL parameter (rate or total).

PDCHUNK Number of "chunks" allocated for the procedure dictionary. The procedure dictionary is allocated in chunks of PDSIZE pages. When an attempt to store a name in the dictionary fails because all chunks are full, a new chunk is allocated.

PDPAGES Total number of pages allocated for the procedure dictionary. Equal to PDCHUNK * PDSIZE.

PDSIZE Procedure Dictionary size.

PDSTRPG Procedure Dictionary Strings per page.

PNDGTIME Number of milliseconds since the last update unit completed that a file's pages have been waiting to be written. The stat is only accumulated when DKUPDTWT is non-zero.

PRIVDEF Default privileges for the file (summed hex value).

RCVYTIME Date/time recovery was last performed or REGENERATE used. RCVYTIME is formatted "YYYYJJJHHMMSSTH", for year, Julian date, hours, minutes, seconds and tenths of seconds. This value is the same as that returned by DTSLRCVY.

RECADD Records started in table B not including extension records (rate or total).

RECDEL Records deleted from table B not including extension records or records deleted by DELETE RECORDS or IFDSET (rate or total).

REQ Number of requests and DISPLAY PROCEDURE commands run on the file (rate or total).

RETRYA Number of table A rehashes required to add an item to table A. This statistics returns the total for the file since it was initialized. A high value for RETRYA could indicate that table A is getting close to being full.

RETRYC Number of table C rehashes required to add an item to table C. This statistics returns the total for the file since it was initialized. A high value for RETRYC could indicate that table C is getting close to being full.

SECTY Summed hex value indicating type of security in effect for file:

```
X'01' - Procedure security.
X'04' - Procedures secured after Release 4.
```

SPILADD Number of records added to spill areas in table B. Same as the Model204 SPILLADD parameter (rate or total).

SPILDEL Number of records deleted from spill areas in table B. Same as the Model204 SPILLDEL parameter (rate or total).

UPDTDUR Number of milliseconds the file has been part of at least on update unit. This includes the time for Model 204 to mark the file physically consistent (the action that completes the update unit). Presented by SirMon in seconds.

UPDTIME Date and time file was last updated. UPDTTIME is formatted "YYYYJJJHHMMSSTH", for year, Julian date, hours, minutes, seconds and tenths of seconds. This stat is the same as Model 204's file statistic DTSLUPDT.

XFULLP Estimate of the percentage of table X that is full. This statistic is equal to the table X highest active page (XHIGHPG) divided by the total number of table B pages (XSIZE).

XHIGHPG The current table B high water mark. Same as the Model204 XHIGHPG parameter.

XQLEN The number of pages in the table X reuse queue. Same as the Model204 XQLEN parameter.

XRECPPG Maximum number of records per Table X page.

XRESERVE The amount of space in bytes on a Table B page on which new records cannot be started. The space is reserved for the expansion of existing records on the Table B page.

XREUSED The number of records added to the file that reused the record number of a previously deleted record. Same as the Model204 XREUSED parameter.

XSIZE Size of table X in number of pages.

APPENDIX D Subsystem statistics definitions

Subsystem statistics provide information about each subsystem active or defined in the Online system. Each subsystem will have a specific value for each subsystem statistic based on the subsystem's current activity and state within the Online.

ACCESS APSY access definiion (PRIVATE, SEMIPUB or PUBLIC).

ACCOUNT ACCOUNT defined on the subsystem 'operations' menu.

CCATMPP Number of CCATEMP pages used to hold pre-compiled procedures.

CMDLVAR APSY command line variable.

COMMVAR APSY communications variable

ERRPROC APSY error procedure.

ERRVAR APSY error variable.

EXITVAL Exit value for APSY communication variable.

INIPROC APSY initialization procedure.

LOGPROC APSY login procedure.

MAXITER Maximum number of iterations allowed by the APSY (if defined).

MSGCTL Suppression level for message during APSY execution.

NFILEG Number of files and groups allocated to the apsy.

NSCLASS Number of SCLASSs defined for the subsystem.

NUMLK Number of 'locked' files in the grouped APSY procedure file.

NUSER Number of users currently in the subsystem.

PRCNPRE Number of non-precompiled procedures in the subsystem.

PRCPRE Number of precompiled procedures in the subsystem.

PRCPSVW Number of server writes while running precompiled procedures in the subsystem. This value is only collected in Model 204 releases 2.2 and later.

PRCRES Number of resident precompiled procedures in the subsystem. Resident QTBL is only available in Model 204 releases 2.2 and later.

PRCRESB Number of bytes used by resident QTBL for procedures in the subsystem. Resident QTBL is only available in Model 204 releases 2.2 and later.

PRCRESE Number of procedures in the subsystem that are eligible to use resident QTBL but were not able to obtain the required virtual storage. Resident QTBL is only available in Model 204 releases 2.2 and later.

PRCSAVE Number of saved compilations for precompiled procedures in the subsystem.

PRCSVWR Number of server writes while running any procedure in the subsystem. This value is only collected in Model 204 releases 2.2 and later.

PREFIXN Non-Precompiled procedure prefix.

PREFIXP Precompiled procedure prefix.

PROCFG Indicates whether the source of the apsy procedures is a FILE or a GROUP.

PROCFIL Name of the apsy procedure file or group.

RESEVAL Number of evaluations for procedures in the subsystem using resident (shared) QTBL. Resident QTBL is only available in Model 204 releases 2.2 and later.

RESSWCH Number of evaluations for procedures in the subsystem that had to switch from using resident (shared) QTBL to non-resident QTBL. Resident QTBL is only available in Model 204 releases 2.2 and later.

STATUS Current status of the subsystem. Valid states are ACTIVE, INACTIVE, DRAINING and TEST.

APPENDIX E *Task statistics definitions*

Task statistics provide information about the *Model 204* maintask and any subtasks defined by the *Model 204* MP feature. If the MP/204 feature is not installed, then only information for "task" 0 (the maintask) will be displayed.

CPU Amount of CPU used by a task (rate or total).

LKPOST Real POST SVC's issued to release MP locks (rate or total).

LKWAIT Real WAIT SVC's issued to wait for MP locks (rate or total).

MQWTM Average number of milliseconds required to traverse the maintask to subtask queue or subtask to maintask queue. MQWTM is averaged over the run and therefore cannot be used for interval calculations. MQWTM is equal to STQWTM/STDEQ.

PCPU Percentage of CPU acquired when requested, by task. PCPU is a measure of how other work on the processors is adversely affecting the tasks.

PCPUC CPU total used for PCPU calculations.

PCPUR Task real time runnable used for task-specific PCPU.

PR Task real time runnable used for task-specific PCPU.

STDEQ Number of times a chunk of work was taken off the maintask to subtask queue (for task > 0) or maintask to subtask queue (for task = 0).

STPOST Total number of POST SVC's issued to transfer work to/from offload subtasks (rate or total). STPOST is always 0 for the maintask.

STQWTM Total time spent waiting on the maintask to subtask queue (for task > 0) or subtask to maintask queue (for task = 0). This statistic is used to generate MQWTM using the formula MQWTM=STQWTM/STDEQ. Stat returns milliseconds but SirMon present it as seconds.

STSLICE Number of times user running in a subtask was sent back to the maintask because of a time silice. Always equal to 0 for the maintask (task 0).

STSWAIT Number of times user running in a subtask was sent back to the maintask because of a SWAIT (internal wait). Always equal to 0 for the maintask (task 0).

STWAIT	Total number of times offload subtasks issued a WAIT SVC to wait for work from the maintask (rate or total).
USERID	The userid of the user currently running in the subtask.
USERNO	The user number of the user currently running in the subtask.
WAITTIM	Amount of time the task has been waiting since it last ran Collected in milliseconds, displayed by SirMon in seconds.

APPENDIX F Critical File Resource statistics definitions

Critical File Resource Statistics describe activity which is occurring against the four critical file resources: DIRECT, INDEX, EXISTS and RECENQ. Each of the critical file resources protects the integrity of a *Model 204* file structure. Critical file resource statistics are provided by *SirMon* to assist in diagnosing second order performance problems. The user should keep in mind that the resources themselves are not what is being viewed, but the activity that is occurring against them.

BUFPAGE Total number of pages in the disk buffer pool currently occupied by pages from all tables in the database file. Equal to BUFPAGA+BUFPAGB+BUFPAGC+BUFPAGD+BUFPAGF.

CFRCDIR Conflicts on the "DIRECT" critical file resource (rate or total). This resource protects the integrity of Table B.

CFRCEXS Conflicts on the "EXISTS" critical file resource. This resource protects the integrity of the existence bit map.

CFRCIND Conflicts on the "INDEX" critical file resource. This resource protects the integrity of the database indexes.

CFRCREC Conflicts on the "RECENQ" critical file resource. This resource protects the integrity of the record enqueueing tables.

CFRQDIR Number of users waiting for the "DIRECT" critical file resource. This resource protects the integrity of table B.

CFRQEXS Number of users waiting for the "EXISTS" critical file resource. This resource protects the integrity of the existence bit map.

CFRQIND Number of users waiting for the "INDEX" critical file resource. This resource protects the integrity of the database indexes.

CFRQREC Number of users waiting for the "RECENQ" critical file resource. This resource protects the integrity of the record enqueuing tables.

CFRQUEU Number of users waiting for any critical file resource.

DKRD Physical page reads from a Model204 database file or CCATEMP.

DKWR Physical page writes to a Model204 database file or CCATEMP.

HDDIRCT Type of enqueue on the critical file resource that protects the Table B records ('EXC', 'SHR' or blank).

HDEXIST Type of enqueue on the critical file resource that protects the existence bit map ('EXC', 'SHR' or blank).

HDINDEX Type of enqueue on the critical file resource that protects the Table C and D indexes ('EXC', 'SHR' or blank).

HDRECNQ Type of enqueue on the critical file resource that protects existence bit map pages for locked record sets ('EXC', 'SHR' or blank).

PNAME Name of the currently executing or last executed procedure.

WT Contains the value of the current wait type flag (same as WAITTYP; see Online monitoring in the *Rocket Model 204 System Manager's Guide*). WAITTYPs 24 and 25 (exclusive and share enqueues on critical file resources) are translated and displayed as 2-character indicators in SIRMON, the first character showing the resource being enqueued (D, I, R or E for DIRECT, INDEX, RECENQ or EXIST) and the second character showing type of enqueue ('E' for exclusive or 'S' for share).

WTIME Time spent in the current wait (displayed in milliseconds).

APPENDIX G Date Processing

This chapter presents date processing issues for *SirMon*. The only use of dates within *SirMon* is to examine the CPU clock (as returned by the STCK hardware instruction) to determine the current date, in case *SirMon* is under a rental or trial agreement. Other than that, there are no date processing considerations for using *SirMon*; *SirMon* itself does not produce any results which depend on the content of any data which may be date values.

For headers on pages or rows that occur on printed pages or displayed screens, *UL/SPF* products generally use a full four-digit year format, although they may display dates with two-digit years in circumstances where the proper century can be inferred from the context.

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