Burroughs Corporation

COMPUTER SYSTEMS GROUP
SANTA BARBARA PLANT

2228 3584

SYSTEM/ODT

PRODUCT SPECIFICATION

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A	10/14/80		Original Issue -- Mark 10.0 Release
B	?		

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INTRODUCTION

General Description

SYSTEM/ODT is a normal-state program which interfaces the system to the operator display terminal (ODT), and manages ancillary functions related to the ODT. It is loaded by coldstart routines and entered into an appropriate name table slot; it is executed automatically by, and only by, the MCP during the Clear/Start process. Should SYSTEM/ODT terminate for any reason while the system is running, the MCP will reinitiate it automatically at the next N_SECOND interrupt. The system user is largely oblivious to the existence of SYSTEM/ODT as a discrete program; it may functionally be considered to be a subsystem of the MCP from which many of its tasks were extracted.

The functions of SYSTEM/ODT include:

1. Receiving operator input from a CRT terminal, either a traditional hard-control ODT or a specially-designated terminal in the datacomm network, and delivering this input to the MCP.

2. Receiving messages from the MCP, including MCP-generated output messages and copies of input messages from all allowable input sources such as card readers, datacomm, zips, pseudo readers, and the ODT messages in (1).

3. Maintaining a wraparound disk file of the system traffic referr to in (2), entitled SYSTEM/ODT.QUEUE.

4. Formatting in various manners some or all of these messages, and periodically displaying them upon the ODT.

5. Optionally printing current and past message traffic on a line printer file.

6. Maintaining a log of system message traffic, SYSTEM/LOG, and periodically or upon operator command "transferring" this log. This term means that the current log is locked in the disk directory and a new SYSTEM/LOG opened. Analysis programs can be optionally initiated by SYSTEM/ODT. The transferred log is named ODTLOG/<mmddyyhhmm>, reflecting the date and time of transfer.

Related Documentation

MCPII	P.S. 2212 5462
MCP Operator's Manual	P.S. 2219 0144

OPERATING INSTRUCTIONS

No operating instructions are required for SYSTEM/ODT, as it is intended to be a transparent part of the operating system. It is executed solely by the MCP; if it is explicitly executed by a user, it will go immediately to EOJ with an appropriate error diagnostic. The only operator commands which are ultimately executed by SYSTEM/ODT include all "KB" commands, the "CQ" command, and commands such as "SL" and "LG" related to the ODTLOG; this fact is not apparent to the system operator.

Program Switches

SYSTEM/ODT is sensitive to one program switch in the release version, and two in a special debug development version. The high-order bit of program switch 0, i.e. SW(0) >= 8, if set at BOJ, tells SYSTEM/ODT to ignore the "hard" ODT, if an ODT control is present, and to use a remote datacomm terminal for the ODT. Setting the switch is superfluous if the system does not have a hard ODT. Program switch 4, effective only in debug versions of SYSTEM/ODT, controls a trace of internal operation of SYSTEM/ODT to file TRACE_FILE described below.

FILES

Information below on the file declarations in SYSTEM/ODT is presented for reference. Critical file attributes in these files are set dynamically by SYSTEM/ODT, ensuring that user attempts at modification do not cause system failures.

LINE is a printer file upon which listings of system message traffic produced with the "KB LP ON" operator command are produced. Attributes (NAM, backup designation, etc.) of the LINE file are user-modifiable.

Q_IN, external name "SPO.Q.FILE", is a queue file used to receive message traffic from the MCP. It is protected against access from any other program.

Q_OUT, external name "ODT_Q_FILE", is a queue file through which operator input is passed to the MCP. It is protected against access from any other program.

ODT_Q, external name "SYSTEM/ODT.QUEUE", is the wrap-around disk file containing the most recent message traffic. It defaults to 200 segments but can be changed in size with the "KB SIZE" operator command. It is accessible input-only to other programs, and is copied into SYSTEM/DUMPFILE when a system memory dump is taken. The first record of this file is a header record; the remaining records contain the most recent system messages in a pseudo variable-length-record format. SYSTEM/ODT does not, in the interest of efficiency, actually open and do logical I/O to this file except undo certain specialized circumstances; it builds I/O descriptors and dispatches through GISMO, avoiding the logical I/O subsystem.

ODTLOG, external name "SYSTEM/ODTLOG", is a disk file of system message traffic maintained when the ODTL option is in effect. Records appear identically to those in SYSTEM/ODT.QUEUE, but the files does not wrap around.

RMT, external name "OPERATOR", is a remote file representing a datacomm terminal used as the ODT in the absence of a "hard" ODT. It is required to be on the lowest multi-line port, and to have an address of "$$".

TRACE_FILE, external name "ODT_TRACE"/<unique ID>, is a wraparound trace file of internal program operation present only in special debugging versions of SYSTEM/ODT. It is intended for development use only. The debugging trace is dynamically turned on and off by setting and resetting the low-order bit of program switch 4.

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ODT QUEUE DATA FORMATS

The following formats, presented in SDL2 syntax, will be useful to programs that wish to access SYSTEM/ODT.QUEUE. ODTLOG formats are identical to ODT queue formats, with the exception of the absence of the ODT queue header record.

```
SET DISPLAY_MODES                   = MSG_MODE,
                                      GROUP_MODE,
                                      PAGE_MODE;

RECORD COORDINATE
   REC                              BIT(8),    %%% relative record
   DISP                             BIT(12);   %%% displacement in bits

RECORD
   1   ODT_Q_MSG_HDR_LAYOUT         BIT(56),
    2  LEN                          BIT(11), %%% in bits, including header
    2  CONTINUATION                 BOOLEAN, %%% True => carried over
    2  COMPLETE                     BOOLEAN, %%% True => end of this message
    2  INPUT_SOURCE                 BIT(3),  %%% see CTRL_CARD_DRIVER in MCP
    2  TIME_AND_DATE                BIT(40), %%% only if NOT CONTINUATION
     3 FILLER                       BIT(4),
     3 TIME_ENQUEUED                BIT(20), %%% tenths of second > midnight
     3 DATE_ENQUEUED                BIT(16), %%% 7 bits year, 9 bits Jday

RECORD ODT_Q_FIRST_REC
   NOTZERO                          BIT(24), %%% always @FFFFFF@
   QUEUE_LEVEL                      BIT(24), %%% prog-disk compatability
                                             %%% check.  Currently 7.
   HEAD                             COORDINATE, %%% gotta display from here
   TAIL                             COORDINATE, %%% enqueue starting here
   MIN_DAD                          BIT(36),% DAD
   MAX_DAD                          BIT(36),% DAD
   INPUT_LINES                      BIT(4),
   OUTPUT_LINES                     BIT(5),
   KB_LP_ON                         BOOLEAN,
   ODT_DIRN                         BOOLEAN,
   DISPLAY_TIME                     BOOLEAN,
   ODT_SUPPRESS                     BOOLEAN,
   ODTL_OPTION                      BOOLEAN,
   ODTLOG_KEY                       BIT(24),
   ODTLOG_SEGMENTS_PER_AREA         BIT(16),
   ENQ_GROUP_SIZE                   BIT(6),
   DISPLAY_MODE                     MEMBER OF DISPLAY_MODES;
```

MEMORY REQUIREMENTS

SYSTEM/ODT is frozen in memory due to its need to point to certain absolute system structures without the constant overhead of recalculating their displacements outside its own base-limit space. Memory usage is a dynamic function, and the following estimates are at best imperfect. The sizes below are subject to change as new capabilities are added or programming modifications made.

RSN and environment	83782 bits
File space	15640 bits
Typically-resident code	62816 bits
Segment dictionary	1040 bits
Total	163278 bits (20409 bytes)

Options such as "KB LP ON" and "ODTL" cause additional memory usage due to the additional open files and the code needed to manage these options within SYSTEM/ODT.

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