RCSL No: 31-D624

Edition: December 1980

Author: Henrik Sierslev

Title:

Errorlog Process

A/S REGNECENTRALEN
af 1979

Keywords:

RC8000, errorlog, external process

Abstract:

This paper describes the communication with the external process errorlog. This process is used to collect information about certain kinds of errors.

(20 printed pages)

Copyright © 1980, A/S Regnecentralen af 1979
RC Computer A/S

Printed by A/S Regnecentralen af 1979, Copenhagen

Users of this manual are cautioned that the specifications contained herein are subject to change by RC at any time without prior notice. RC is not responsible for typographical or arithmetic errors which may appear in this manual and shall not be responsible for any damages caused by reliance on any of the materials presented.

42-i 1341

FOREWORD

Errorlog is an external process used to registrate different kind of errors.

Errorlog is activated when an internal process sends one or more messages to errorlog. The message shall point out an area inside the calling process where the testrecords can be delivered. When the area is filled, errorlog will return an answer specifying the number of halfwords delivered.

TABLE OF CONTENTS PAGE

1. ERRORKINDS 1.

The following kinds of errors are registrated:

Internal interrupt 0, 1, 2, and break 6 (monitor call break).

Discerror. An abnormal result on a disctransfer will cause errorlog to generate a record. The record will be generated before the discdriver takes action to repair the error, e.g. repair by ecc or repeat the transfer.

FPA transmission error. An abnormal result on a transfer will cause errorlog to generate a record. As for the disc, the record will be generated before any actions are taken to repair the error.

Subprocess error. Errorlog will generate a record if one or more of the following statusbits are set in an answer (statusbit 0 = Msb):

Statusbit 1; Parity error
- 2; Timer
- 3; Data overrun
- 4; Block length error (MT)
- 9; Mode error (MT)
- 10; Read error (Card Reader)
- 11; Card reject or disc error.

2. COMMUNICATION WITH ERRORLOG 2.

Errorlog accepts messages of the following format

19 < 12 + 0
First adr
Last adr
0

First and last adr. must point inside the calling process. The size must be greater than 76 Hw.

Errorlog copies the records into the buffer.

The message is returned in two cases:
1) when the rest size in the buffer is less than 76 Hw,
2) when copying is rejected maybe because the sender is stopped.

In both cases errorlog will return an answer stating number of halfwords moved.

It is possible to send several messages to errorlog. The buffers will be filled and returned one after one.

Although it is an i/o message errorlog allows the message currently being processed, to be regretted.

In this case number of halfwords will always be zero.

Please note that messages sent to errorlog but not under processing will cause break 6 if they are regretted.

3. RECORD FORMATS 3.

All records have the following fields in common:

+0 Kind; (halfword)
+2 - +8 name of process
+30 - +32 time of record (fetched from the monitor table).

3.1 Internal Interrupts and Break 6 3.1

Format
+0 ; Kind=0, 0

+2 - +8 name of internal process

+10; w0
+12; w1
+14; w2
+16; w3
+18; status
+20; IC
+22; cause
+24; SB
+26; (IC-4) ; last two instructions
+28; (IC-2) ; executed
+30; Time1 ;
+32; Time2 ;

A description of the status and cause registers is found in ref. [1].

3.2 Discerror 3.2

An i/o message may be split up in several transfers, each concerning a consequtive group of segments. If one of these transfers is unsuccessful errorlog will generate a record. The processname in the record will be the name of the receiver of the

message, i.e. the name of the areaprocess the logical disc or the physical disc. The kind will always be 62.

```
+0 Kind=62, 0
+2 - +8 name of process
+10; operation, mode of message
+12; first address            ; in primary storage
+14; first segment number     ; in current transfer
+16; number of segments       ; in current transfer
+18; i/o result
+20; remaining characters     ; in current transfer
+22; current status
+24; event status
+26; detailed status
+28; process description adr.; of physical discprocess
+30; time1
+32; time2
```

I/o result is a result generated by the monitor as action on a received external interrupt or a software timeout. It is interpreted as follows:

```
i/o result 0; normal termination     ; interrupt received
           1; bus reject, busy       ; device not started.(ex.bit23)
           2; bustimeout, disconnect; device not started.(ex.bit22)
           3; software timeout       ; no interrupt received
           4; abnormal termination   ; interrupt received
           5; waitprogram terminated; interrupt received
           6; power restart          ; software generated
```

In case of i/o result 1, 2, 3, 6 the halfwords +20 - +26 will be zero as no status has been delivered from the controller.

In case of i/o result 5 the halfwords +2 - +16 will hold no relevant information.

I/o result 4 means that an interrupt was received but the last command executed was not a stop or a wait command.

The standard channel program always contains a sense command. The current status and event status are formed by logical or of status from the sense command and the status from the stop command, e.g. the standard status.

Note that remaining characters are undefined if the read or write command is not executed.

A detailed description of the status is found in ref. [2].

3.2.1 Current Status 3.2.1

(bit 0 = Msb)

bit 0 : power low in disc/adaptor
bit 1 : local
bit 5 : seek error
bit 8 : write protect
bit 9 : high density
bit 10 : mode (strobe offset used)
bit 16-23: devicekind = 5

3.2.2 Event Status 3.2.2

bit 0 : intervention (power change)
bit 1 : dataerror (parity error)
bit 3 : data overrun
bit 4 : hard error
bit 5 : position error
bit 20: communication error
bit 21: interrupt error
bit 22: bus timeout
bit 23: bus parity error

3.3 FPA Transmission Error 3.3

Format of record

```
+0 kind, 0                        ; FPA receiver    : kind = 86
+2 - +8 NAME of rec/trm process; FPA transmitter : Kind = 88
                                  ;
+10 - +16 standard status
+18 - +24 status from first sense
      +26 startbyte, statusbyte
      +28 process descr. adr.
      +30 time
      +32 time
+34 - +40 status from second sense
+42 - +74 channel program
```

The status areas are formatted as follows:

+0 channel progran adr of next command
+2 remaining characters
+4 current status
+6 event status

For details about channel program and status, see ref. [3].

3.3.1 Current Status 3.3.1

bit 0 : front end disconnected
bit 21: device kind ; receiver : 0 transmitter : 1
bit 23: always 1 : blockoriented device

Remaining bits are zero.

3.3.2 Event Status 3.3.2

bit 0 : reset received from front end (only receiver)
bit 1 : parity error in medium
bit 2 : time out
bit 4 : block length error
bit 21: status transfer error
bit 22: bus timeout
bit 23: bus communication error

Remaining bits are zero.

Before a channel program is started the statusareas will be set to -1 indicating that status has not been received.

3.3.3 Start Byte 3.3.3

The startbyte and the statusbyte hold information concerning the line protocol.

All transfers on the fpaline are opened with a startbyte.

Format of startbyte.

bit 0: blocknumber
bit 4: data follows
bit 5: header bit
bit 6: data flag
bit 7: special function

Special functions are:

1 1 1 1 1 1 1 1 master clear
and 1 1 0 1 1 1 1 1 accept master clear.

3.3.4 Status Byte 3.3.4

All transfers are answered with a statusbyte which specifies the result of the transmission.

The format of the statusbyte is:

bit 12 : blocknumber
bit 16-17: block control
bit 18 : blocklength error
bit 19 : parity error

Blockcontrol contains acceptance or rejection of a header received. The field is dummy if the parity bit is set.

The values of blockcontrol are:
0 accepted
1 wait. The operation cannot be received yet due to missing resources in the frontend
2 skip. The header and data should be cancelled
3 reject. Unintelligible function or line not initialized.

Detailed information about the startbyte and the statusbyte are found in ref. [4].

3.4 Subprocess Error 3.4

Format of record

+0 : kind, subkind
+2 - +8 name of external process
+10 message (1)
+12 - (2)
+14 - (3)
+16 - (4)
+18 answer (1) ; status
+20 - (2) ; characters transferred
+22 - (3) ; halfwords transferred

```
+24 answer  (4)  ;
+26 -       (5)  ;
```

Kind will be 84 or 85 representing a remote link or a local link.

Subkind holds information about the kind of device represented by the subprocess.

Information about the format of message and answer is found in the external process manual representing the current subkind.

3.4.1 Subkind, Type 3.4.1

```
 0  ,general sequential device;
 4  ,areaprocess              ; see ref. [5]
 6  ,disc                     ; see ref. [6]
 8  ,typewriter               ; see ref. [7]
12  ,papertape punch          ; see ref. [8]
14  ,lineprinter              ; see ref. [9]
16  ,cardreader               ; see ref. [10]
18  ,magnetic tape            ; see ref. [11], [12]
22  ,diskette                 ; see ref. [13]
```

A. REFERENCES A.

[1] RCSL No 42-i1235:
RC8000 Computer Family, Reference Manual

[2] RCSL No 30-M43:
DSC801, Disc Storage Controller, Reference Manual

[3] RCSL No 52-AA661:
FPA801 Front End Processor Adaptor, Reference Manual

[4] RCSL No 31-D496:
FPA Line Control Protocol

[5] RCSL No 31-D539:
RC8000 Backing Storage Area Process

[6] RCSL No 31-D546:
RC8000 Disc Process (RC36xx)

[7] RCSL No 31-D580:
RC8000 Terminal Process

[8] RCSL No 31-D534:
RC8000 Paper Tape Punch Process

[9] RCSL No 31-D536:
RC8000 Line Printer Process

[10] RCSL No 31-D537:
RC8000 Punched Card Reader Process

[11] RCSL No 31-D533:
RC8000 Magnetic Tape Process (9-track)
RCSL No 31-D540:
RC8000 Magnetic Tape Process (7-track)

[12] RCSL No 31-D542:
RC8000 Cassette Tape Process

[13] RCSL No 31-D543:
Flexible Disc Process

RETURN LETTER

Title: Errorlog Process RCSL No.: 31-D624

A/S Regnecentralen af 1979/RC Computer A/S maintains a continual effort to improve the quality and usefulness of its publications. To do this effectively we need user feedback, your critical evaluation of this manual.

Please comment on this manual's completeness, accuracy, organization, usability, and readability:

Do you find errors in this manual? If so, specify by page.

How can this manual be improved?

Other comments?

Name: Title:

Company:

Address:

Date:

Thank you

42-i 1288

..... Fold here .....

..... Do not tear - Fold here and staple .....

Affix
postage
here

A/S REGNECENTRALEN
af 1979

Information Department
Lautrupbjerg 1
DK-2750 Ballerup
Denmark