EDOC214
CDOC214

CHARISSA DATA ACQUISITION SYSTEM

Register Definitions for the RSM (EC592A)

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Registers for the RSM (EC592A) module

This document should be read in conjunction with the document **EDOC210** which describes the **Register Server** implmentation for **CAMAC**.

The Read and Store Module (RSM) is a CAMAC Auxiliary Controller. It reads CAMAC devices (usually ADC interfaces), and stores the information in an internal memory. When sufficient data have been collected (program selectable with a maximum of 2 Kwords) the module automatically switches to using a second memory block and generates a LAM to indicate that the first block may be read out.

all register attributes include -c (crate address) and -n (station address)

Registers using the **xCAMAC** class of the **CAMAC** Register Server

status register read by f(1) a(12)

bit 0	data word available
bit 1	clogging has occurred
bit 2	timeout - EM failure to receive the expected number of hit words within 32 microsecs
bit 3	timeout - CAM CAMAC cycle did not complete within 32 microsecs
bit 4	clogging present
bit 5	RSM disabled

```
RSM.status              attributes  -a 12  -f 1  -w 16  -p ro  -l 0  -b 0  -z x
RSM.status.data         attributes  -a 12  -f 1  -w 16  -p ro  -l 1  -b 0  -z d
RSM.status.clog         attributes  -a 12  -f 1  -w 16  -p ro  -l 1  -b 1  -z d
RSM.status.timeout_em   attributes  -a 12  -f 1  -w 16  -p ro  -l 1  -b 2  -z d
RSM.status.timeout_cam  attributes  -a 12  -f 1  -w 16  -p ro  -l 1  -b 3  -z d
RSM.status.clogged      attributes  -a 12  -f 1  -w 16  -p ro  -l 1  -b 4  -z d
RSM.status.disabled     attributes  -a 12  -f 1  -w 16  -p ro  -l 1  -b 5  -z d
```

Write LAM mask register write by f(17) a(13)

Four conditions can generate a LAM: the two timeout conditions, the “word available to be read” (sync) condition, and the “clogging has occurred” condition. Each of these is enabled to generate a LAM when the associated bit of the LAM mask register is set.

```
RSM.lam_mask    attributes  -a 13  -f 17  -w 16  -p wo  -l 0  -b 0 -i 0
```

Read CNAF causing CAM timeout read by f(1) a(3)

Following a timeout while executing a CAMAC cycle (timeout-cam condition) the RSM enters a state which can only be exited by the initialisation or disable command. The CNAF being used at the time of the timeout condition can be accessed.

RSM.cnaf_err attributes -a 3 -f 1 -w 16 -p ro -l 0 -b 0

Read data read by f(0) a(0)

Read the data memory. Valid data is returned only if Sync is active.

RSM.data attributes -a 0 -f 0 -w 16 -p ro -l 0 -b 0

CNAF memory read by f(1) a(2) & write by f(17) a(2)

Read or write the next location in the CNAF memory and increment its address pointer. The CNAF memory contains 128 words which are loaded by successive write operations. These commands should only be executed with the RSM disabled.

RSM.cnaf attributes -a 2 -f 1 -w 16 -p rw -l 0 -b 0 -i 0

Write Block Length write by f(17) a(0)

Define the length of the RSM internal data buffers. Maximum length is 2 Kwords. This command should only be executed with the RSM disabled.

RSM.blklen attributes -a 0 -f 17 -w 16 -p wo -l 0 -b 0 -i 2047

Write High Water Mark write by f(17) a(1)

Define the position of the High Water Mark in the RSM internal data buffers. This should be the value of the length set for the block less the size of the maximum event expected.

RSM.hwm attributes -a 1 -f 17 -w 16 -p wo -l 0 -b 0 -i 1947

Registers using the **cCAMAC** class of the **CAMAC** Register Server

These registers do not require data and have no initial value. However read-register operations may return Q and X as data.

disable write or read by f(24) a(2)

Disable data acquisition

RSM.disable attributes -a 2 -f 24

enable write or read by f(26) a(2)

Enable data acquisition

RSM.enable attributes -a 2 -f 24

Clear CNAF address pointer write or read by f(11) a(15)

Set the CNAF memory address pointer such that a read or write CNAF memory operation will access the first word of the CNAF memory.

RSM.cnaf_clr attributes -a 15 -f 11

Force HWM write or read by f(25) a(0)

Simulate passing of the High Water Mark. The module acts as if the HWM has been passed. This is useful to force out any data held within the RSM buffer at end of data acquisition

RSM.forcehwm attributes -a 0 -f 25

Clear Clogged write or read by f(23) a(12)

Clears the “clogging has occurred” status bit in the module status register.

RSM.clogged_clr attributes -a 12 -f 23