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**3IDI USER FACILITIES:
NODAL DEFINED FUNCTIONS TO READ/WRITE MESSAGES
TO/FROM A 3IDI CHANNEL**

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Abstract

This note is a user guide of NODAL "defined" functions to read and write messages on a 3IDI channel

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1 Introduction

The purpose of these facilities is to provide the RTNODAL user with an easy to use and efficient tool to read/write messages on a 3IDI module channel:

- By giving an access method to channel message, hiding 3IDI CAMAC interface
- By running low level CAMAC interface, decreasing overhead of user program

For initialisation of the module and its channel, the user must use the normal CAMAC access.

For the description of the 3IDI module, the user must refer to document <1>

Reminder: a complete and a more sophisticated high level package for 3IDI module exist and its user'guide is given in document <2>

<1> USER'S MANUEL OF THE CAMAC MODULE 3IDI-PS: F.Perriollat, R. Desbordes
(PS/CO/Note 85-008)

<2> Package IDI pour les calculateurs de processus (FEC) des controles du
PS: F.Perriollat (PS/CO/Note 83-024)

2 User interface of the 3IDI facilities

These functions are available as NODAL defined function, written in low level language (NORD-PL), and should be loaded first by means of the LDEF command.

2.1 NODAL functions to read/write

Either to purge 3IDI mailbox or to read/write messages on the 3IDI channel.

2.1.1 Clear 3IDI mailbox and get LAM status register

Global function to purge mail box content by reading it and giving back lam status register value (16 bits).

SYNTAX :

>\$SET ST=RW3IDI(L,CR,N,-1,LM)

WHERE : ST : String receiving string read from mail box.
L : Loop where 3IDI crate is connected to.
= 0 in case of mother crate
>0 and <=2 in case of serial loop
CR : Crate address
>=0 and <7 in case of mother crate
>=1 and <=59 in case of serial loop
N : Slot of the crate where the 3IDI module is embedded
>=0 and <=23
-1 : No channel selected, means no action on channel.
LM : To receive value of current LAM status register (16 bits)

2.1.2 READ a message from a 3IDI channel

Function to read the next available message from specified channel. When no message give string function failure (55) which can be trapped by NODAL syntax to improve processing of unsuccessful reading.

SYNTAX :

>\$SET ST=RW3IDI(L,CR,N,CH,LM)

WHERE : ST : String receiving string read from mail box.
L : Loop where 3IDI crate is connected to.
= 0 in case of mother crate
>0 and <=2 in case of serial loop
CR : Crate address
>=0 and <7 in case of mother crate
>=1 and <=59 in case of serial loop
N : Slot of the crate where the 3IDI module is embedded
>=0 and <=23
CH : Channel number: 0, 1, or 2
LM : To receive value of current LAM status register (16 bits)

2.1.3 WRITE a message on a 3IDI channel

Function to write a message on a specified channel. When output buffer not available, it gives back a string function failure (55).

SYNTAX :

>\$SET RW3IDI(L,CR,N,CH,LM)=ST

WHERE : ST : String to be sent in specified channel.
L : Loop where 3IDI crate is connected to.
= 0 in case of mother crate
>0 and <=2 in case of serial loop
CR : Crate address
>=0 and <7 in case of mother crate
>=1 and <=59 in case of serial loop
N : Slot of the crate where the 3IDI module is embedded
>=0 and <=23
CH : Channel number: 0, 1, or 2
LM : To receive value of current LAM status register (16 bits)

2.2 NODAL functions to get and clear 3IDI error

2.2.1 Get and clear 3IDI module or channel error

Global function to get and clear general module or specified channel errors. It also gives back the LAM status register value (16 bits).

SYNTAX :

>SET CC=ER3IDI(L,CR,N,CH,LM)

WHERE : CC : receive value of required error (0 if no error)
L : Loop where 3IDI crate is connected to.
= 0 in case of mother crate
>0 and <=2 in case of serial loop
CR : Crate address
>=0 and <7 in case of mother crate
>=1 and <=59 in case of serial loop
N : Slot of the crate where the 3IDI module is embedded
>=0 and <=23
CH : specifies which error is to be read.
= -1 means general module error.
= 0, 1, 2, means the error of corresponding channel
LM : To receive value of current LAM status register (16 bits)