

IF Switch6X24

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COMMAND OVERVIEW:

Monitor and control of the IF Switch can be performed either through the RS-232 serial interface port or in HTML through the Ethernet port. For HTML interface, a web browser such as Netscape can be used to control the IF Switch. In addition a raw HTML mode is provided which is suitable for direct control by custom software.

The RS-232 interface runs at a default rate of 9600 baud, no parity, 8 data bits, and 1 stop bit. The IF Switch is an RS-232 DTE so a null modem will usually be necessary when connecting it to a computer. The IF Switch does not use flow control and its DTR and RTS lines are always enabled. Thus the RS-232 interface should work whether or not the terminal has hardware flow control enabled. If necessary, the baud rate can be slowed down by using the baud command.

FTP access is controlled by a user name and password. The user name and password may be changed by using the username and password commands which are available only through the RS-232 serial interface.

HTML access is restricted to authorized users. Authorized users are listed in the users.dat file in the system directory. This file may be accessed via FTP. The users.dat file may be modified by any ASCII editor and uploaded to the IFS via FTP. The users.dat file has the following format. Each line starts with an IP address in decimal dotted format. The IP address must be followed by a space. Any entries in the line after this space are ignored.

For the raw HTML mode, the software must send a command in the form:

```
GET /Raw.htm?command-name arg1 arg2 ...
```

The command name and any arguments must be separated from one another by one or more spaces. Either upper or lower case letters may be used. When entering commands, only the minimum number of letters which make the command unambiguous are necessary.

For a list of commands along with brief descriptions, invoke the list command by entering:

```
GET /Raw.htm?list
```

For detailed information on a command enter:

```
GET /Raw.htm?help command-name
```

LIST OF COMMANDS:

Letters in parentheses are optional.
 Either upper or lower case letters may be used.

HELP COMMANDS

H(ELP)		provides information about commands
L(IST)		command list with brief descriptions
PRINT	[path]filename	prints all online help to filename

OPERATOR COMMANDS

assign	in/out num label	assign IFS input or output label
ethernet		get ethernet & IP addresses
flags		temperature & power supply status
in	in_name out out_name	set input selection for an IFS output
ip_addr	address, rarp, or bootp	set IP address
out	out_name in in_name	set input selection for an IFS output
password	password	set ftp password
selftest	num, label, or ALL	test control of coax switches
sernum		read IFS board serial number
username	username	set ftp user name
version		software version of current executable

LOW LEVEL HARDWARE COMMUNICATION

iord8	port	read byte from ISA bus address port
iowrt8	port data	write hex byte to ISA bus address port
loadxil		load Xilinx file from disk
load_sw		pulse selected coax switch driver
xt	out_num (skip_num)	increment input selection
rd_sw	num letter	read coax switch sense lines
set_all	in_num	set all outputs to same input
set_output	out_num in_num	set input selection for an IFS output
step	in_num group (delay)	sequentially switch IFS outputs
wrt_sw	num letter data	write to coax switch registers

IFS MONITOR & CONTROL

cpuload		reports CPU load
ifs_testreg	data	write data to IFS test register
meminfo		get available memory info
reboot		reboot microprocessor
test_ifsx		test IFS board XILINX

DISK UTILITIES

chdrive	*	change drive
checksum	filename	calculate checksum of a file
copy	sourcefile newfile	copy file
delete	filename	delete file
dir		list files in present directory
diskinfo		get info about available disks
exe	NEW or OLD	select executable for next restart
extract	filename (no extension)	extract .exe file from .cxe file
readbin	filename	read binary file
adfile	filename	read file - binary & ascii
rename	oldname newname	rename file
set_system		set system files to read only
typeascii	filename	type ascii file contents

typebin filename type binary file contents
update extract new executable to flash disk

COMMAND DESCRIPTIONS:

PRINT_HELP filename

prints all of the online help as an ASCII text file to the file specified by filename.

assign in/out num label

assigns an input or output label to an IFS6X24 input or output port. The first argument must be the word in or the word out.

num = port number (input range 1 to 6)
(output range 1 to 24)

The label can contain any printable ascii characters except #, space and tab. The word ALL (with or without capitalization) cannot be used for a label. One or two digit integers cannot be used for labels. Labels must be 16 characters or less. Labels are case insensitive.

If this command is entered without any arguments, the label assignments for all IFS6X24 ports will be returned.

ethernet

returns the ethernet address and the IP address.

flags

returns the status of the IFS6X24 temperature and power supplies.

in in_name out out_name

sets the in_name IFS6X24 input port as the output for the out_name IFS6X24 output port. The second argument must be the word out. If this command is executed without any arguments, the input port settings for all the output ports are reported.

in_name = input port label or input port number (1 to 6)
out_name = output port label or output port number (1 to 24)

ip_addr address, r(arp), or b(ootp)

sets the IP address of the IFS6X24. The IP address must be entered in decimal dotted format with no intervening spaces. If rarp or bootp (or abbreviation r or p) is entered instead of an address, the IFS will search for a RARP or BOOTP server to get its IP address.

The IP address choice entered will not take effect until the IFS is rebooted with the reboot command or until the power is recycled. If this command is entered without any arguments, the IP address choice for the next reboot will be reported.

This command is only available through the serial interface.

out out_name in in_name

sets the in_name IFS6X24 input port as the output for the out_name IFS6X24 output port. The second argument must be the word in. If this command is executed without any arguments, the input port settings for all the output ports are reported.

in_name = input port label or input port number (1 to 6)
out_name = output port label or output port number (1 to 24)

password password

Sets the password for the ftp server to the password entered for the command argument. Any printable characters except space and tab may be used. Passwords are case sensitive and are limited to 4 characters minimum and 32 characters maximum.

This command is only available through the RS-232 interface. If this command is entered without any argument, the present password will be returned.

selftest out_num, out_label, or ALL

tests to verify that the coax switches can be set to every position. The argument should be the number of an IFS6X24 output, the label of an IFS6X24 output, or the word ALL (not case-sensitive). If the argument is a number or a label, only the coax switches for that output will be tested. If the argument is ALL, all of the coax switches will be tested.

out_num = output number (1 to 24)

sernum

returns the serial number of the IFS board.

username username

Sets the user name for the ftp server to the user name entered for the command argument. Any printable characters except space and tab may be used. User names are case sensitive and are limited to 3 characters minimum and 32 characters maximum.

This command is only available through the RS-232 interface. If this command is entered without any argument, the present user name will be returned.

version

returns the software version date and time of the presently running program executable.

iord8 port

reads an 8 bit input word from the ISA I/O device at hexadecimal address port and returns the hexadecimal value.

iowrt8 port data

writes the 8 bit hexadecimal number data to the ISA I/O device at hexadecimal address port.

loadxil

loads the Xilinx from the ifs.bit file on the disk.

load_sw

pulses the selected coax switch driver with a 20 millisecond enable signal. The selected coax switch driver may be set with the wrt_sw command.

next out_num (skip_num)

increments the input selection for the out_num output port to the next input port. If the present input is port 6, it cycles back to input port 1. If the optional skip_num argument is present, the input port specified by this argument will be skipped.

out_num = 1 to 24
skip_num = 1 to 6

rd_sw n X

read the 6 sense lines of coax switch number SnX where

n = 1 to 8
X = A, B, or C

The mapping of coax switches to outputs is:

Coax Switch	Output	Coax Switch	Output	Coax Switch	Output
S8C	1	S8B	9	S8A	17
S7C	2	S7B	10	S7A	18
S6C	3	S6B	11	S6A	19
S5C	4	S5B	12	S5A	20
S4C	5	S4B	13	S4A	21
S3C	6	S3B	14	S3A	22
S2C	7	S2B	15	S2A	23
S1C	8	S1B	16	S1A	24

`set_all in_num`

sets all outputs to input number `in_num`. If this command is executed without any arguments, the input numbers for all outputs are reported.

`in_num = 1 to 6`

`set_output out_num in_num`

sets input number `in_num` as the output for output number `out_num`. If this command is executed without any arguments, the input numbers for all outputs are reported.

`in_num = 1 to 6`
`out_num = 1 to 24`

`step in_num group (delay)`

sequentially switches the IFS6X24 outputs to input number `in_num`, then sequentially switches the IFS6X24 outputs to another input.

`in_num = input number (1 to 6)`
`group = coax switch group letter (A, B, or C)`
`delay = delay in seconds between steps, optional argument (default = 1)`

For mapping of the coax switch group letters to output numbers, see the `rd_sw` command.

This routine first switches all IFS6X24 coax switches in the specified

group to an input other than the specified one. Then, it sequentially switches each IFS6X24 output in the specified group to input number in_num starting with the lowest number output of the group. It waits the specified delay interval before switching each subsequent output. After the last output in the group is switched, it cycles back through the 8 outputs of the group switching each one to another input, again using the specified delay interval before switching each subsequent output.

wrt_sw n X data

writes data to the coax switch control register. Also sets the coax switch addr & sel registers to select coax switch number SnX where

n = 1 to 8
X = A, B, or C
data = 1,2,4,8,10, or 20 (hex)

This data will set the selected coax switch to the port selected by the high bit of data the next time load_sw is executed. The coax switch port selected by data is determined by the bit position of the high bit of data as follows:

data = 1 -> Port 1
data = 2 -> Port 2
data = 4 -> Port 3
data = 8 -> Port 4
data = 10 -> Port 5
data = 20 -> Port 6

For mapping of the coax switch numbers, SnX to outputs, see the rd_sw command.

cpuload

reports CPU load.

ifs_testreg data

writes the hexadecimal number given by the argument data to the IFS test register (range of data = 00 to FF). If the argument is omitted, the contents of the IFS test register are read and returned as a hexadecimal number.

meminfo

returns information about available memory.

reboot

reboots microprocessor.

test_ifsx

tests IFS XILINX

attrib filename R or N

chdrive *

changes the current drive to the drive letter specified by *.

checksum filename

calculates the unsigned hexadecimal sum of all the bytes in the specified file.

copy sourcefile newfile

copies the file named sourcefile to the new file named newfile. The new file can be on the same disk or another disk.

delete filename

deletes the specified file if not a read-only file.

dir

lists the files in the root directory of the present drive. The size of each file plus time and date of last modification is also shown.

diskinfo

This routine reports information about the disks on the system.

exe N(EW) or O(LD)

selects the version of the program executable which will be activated the next time the system is restarted. If the NEW argument is present, the .NEW version of the program executable, if present on the flash disk, will become the executable for the next restart and the present executable will become the .OLD version. Similarly, the OLD argument will invoke the .OLD version

of the program and save the present version as the .NEW version.

`extract filename (no extension)`

extracts filename.exe from the file named filename.cxe and checks the checksum. A .cxe file is a file which contains a checksum in its first 4 bytes followed by the .exe file. The checksum is the sum of all bytes in the .exe file. The extracted file is given a .upd extension.

`readbin filename`

This utility prints the binary contents of the selected file to the screen. Follow the screen prompts for usage instructions.

`readfile filename`

This utility prints the contents of the selected file to the screen with hexadecimal representation of the binary contents plus translation of ascii characters. Follow the screen prompts for usage instructions.

`name [drive:]oldname [drive:]newname`

renames a file to the specified newname. This command can be used to move a file from one drive to another by including the drive specifications. When moving a file to another drive, newname can be the same as oldname or different.

`set_system`

sets all system files to read only to prevent accidental deletion.

`typeascii filename`

This utility prints the entire ascii contents of the selected file to the screen without stopping. The file size is limited to 65,536 bytes for the serial interface, 97,000 bytes for the web interface.

`typebin filename`

This utility prints the entire binary contents of the selected file to the screen without stopping. The file size is limited to 32 kB (32,768 bytes). The printing format matches the required input format of the ahex2bin (ascii hex to binary) program. Thus, this routine can be used to send a binary file to an RS-232 monitor. The monitor can save it as a log file and use the ahex2bin program to

convert it back to a binary file.

update

extracts the .EXE file from the program .CXE file on the flash disk and makes it the new executable. The present executable on the flash disk is saved on the flash disk as a .OLD file. Any previous .NEW and .OLD files on the flash disk are deleted. The .CXE file on the flash disk is also deleted.

The system must be restarted for the new executable to become active.