
CASPERGUI Documentation

Release 1

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Created by Danny Price on 2011-03-30.

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INTRODUCTION

Caspergui is a browser based Graphical User Interface (GUI) for control of CASPER hardware. This script utilises the KATCP python libraries, the bottle web framework, and sqlite3:

- <http://casper.berkeley.edu/wiki/KATCP>
- <http://bottle.paws.de/>
- <http://docs.python.org/library/sqlite3.html>

The HTML/CSS is based on blueprint CSS web framework, and plotting is done with HTML5/javascript flot:

- <http://www.blueprintcss.org/>
- <http://code.google.com/p/flot/>

This is still under heavy development, with features being added / removed sporadically. Use at your own risk, and be aware that I've done no security checking (so don't run this on the world wide web).

USAGE

Assuming you've got the dependencies sorted, all you should need to do is run:

```
>> python caspergui.py <ROACH_NAME or IP> [options]
```

for example, I've got an entry in my /etc/hosts file for 'junebug', whose IP address is 192.168.126.3. I would run:

```
>> python caspergui.py junebug
```

This would start up a webserver on localhost:8080, and junebug is set as the roach to send and receive queries from. The options available are:

Options:

```
-h, --help            show this help message and exit
-p PORT, --port=PORT  Select KATCP port. Default is 7147
-i HOSTIP, --hostip=HOSTIP
                        change host IP address to run server. Default is
                        localhost (127.0.0.1)
-P HOSTPORT, --hostport=HOSTPORT
                        change host port for server. Default is 8080
```

Control functions and interface for the Medicina Correlator/SpatialFFT instrument

2.1 caspergui.py

Created by Danny Price on 2011-01-12.

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Caspergui is a browser based Graphical User Interface (GUI) for control of CASPER hardware. This script needs lolkatcp.py to run, which houses all the katcp commands for data capture, plotting etc.

This is still under heavy development. Use at your own risk, and be aware that I've done no security checking (so don't run this on the world wide web).

2.2 lolcatkcp.py

Created by Danny Price on 2011-01-12.

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Helper functions and classes for controlling roach boards by KATCP.



Figure 2.1: apparently this will show up as a caption

class lolkatcp.**Pinger** (*ip*)

Threaded python based ping class. Sends out pings using different threads and returns the response. Code from wellho.net

lolkatcp.**bin2dec** (*binary*)

return the decimal string representation of *binary*

lolkatcp.**dec2bin** (*decimal*)

return the binary string representation of a *decimal*

lolkatcp.**dec2hex** (*n*)

return the hexadecimal string representation of integer *n*

lolkatcp.**hex2dec** (*s*)

return the integer value of a hexadecimal string *s*

lolkatcp.**ping** (*hostlist*)

Ping a list of hosts (using the threaded Pinger class)

lolkatcp.**reset** (*fpga*)

Resets the sync and all counters by sending reset signals to the FPGA. This assumes that the relevant control registers are called:

- cnt_rst*: counter reset
- sync_rst*: sync reset
- sync_en*: sync enable

This def returns a flashmsg, which can be displayed on a page.

`lolkatcp.snapper(fpga, snap_id, bytes=4096, fmt='uint32', byteswap=True)`

Reads a snap block, and returns the unpacked values as an array.

- *fpga*: the `corr.katcp_wrapper.FpgaClient(roach, port, timeout=10)` object
- *snap_id*: name of the block to snap
- *fmt*: unpack format to use (numpy data formats, e.g. `uint32`, `int8`)
- *bytes*: number of bytes to read (remember, 1 byte = 8 bits)
- *byteswap*: Defaults to true. The PowerPC has a different endianness to most architectures, and KATCP does NOT do host-to-network bit swapping. So, the byte order generally needs to be swapped.

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