Test Report of Atom CPU with asterisk G729-G711 codec transcoding

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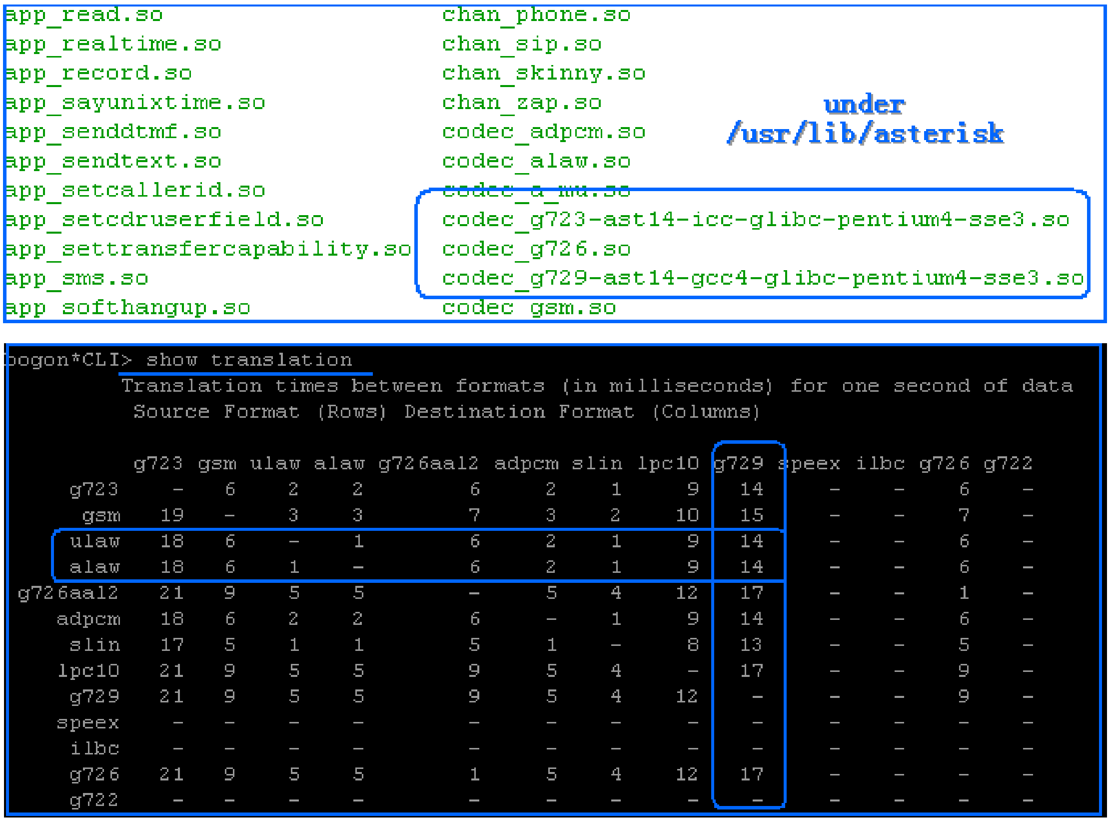
Some people buy the Intel CPU (Atom 230) to build an asterisk server. I did a simple test for codec transcoding. The purpose of test case is only for reference when you build a Atom CPU based asterisk server, maybe the test environment is not really completed due to some limitations such as test tools, bandwidth of LAN, Network card, version of g729 and the duration of timing, but I try to give you a picture for asterisk server with transcoding. In this paper, I will cover installation of G729, testing tools, result of testing and some screens.

1) Installation of Open Source G729

   Before installing g729 codec, make sure the asterisk server can run properly, then go to the official website to get the binary files and copy those two files into the default path. The two figure show the modules as below:



```
app_read.so                     chan_phone.so
app_realtime.so                 chan_sip.so
app_record.so                   chan_skinny.so
app_sayunixtime.so              chan_zap.so
app_senddtmf.so                 codec_adpcm.so
app_sendtext.so                 codec_alaw.so
app_setcallerid.so              codec_a_mu.so
app_setcdruserfield.so          codec_g723-ast14-icc-glibc-pentium4-sse3.so
app_settransfercapability.so    codec_g726.so
app_sms.so                      codec_g729-ast14-gcc4-glibc-pentium4-sse3.so
app_softhangup.so               codec_gsm.so
```



```
bogon*CLI> show translation
         Translation times between formats (in milliseconds) for one second of data
          Source Format (Rows) Destination Format (Columns)

          g723 gsm ulaw alaw g726aal2 adpcm slin lpc10 g729 speex ilbc g726 g722
     g723    -   6    2    2        6     2    1     9   14     -    -    6    -
      gsm   19   -    3    3        7     3    2    10   15     -    -    7    -
     ulaw   18   6    -    1        6     2    1     9   14     -    -    6    -
     alaw   18   6    1    -        6     2    1     9   14     -    -    6    -
 g726aal2   21   9    5    5        -     5    4    12   17     -    -    1    -
    adpcm   18   6    2    2        6     -    1     9   14     -    -    6    -
     slin   17   5    1    1        5     1    -     8   13     -    -    5    -
    lpc10   21   9    5    5        9     5    4     -   17     -    -    9    -
     g729   21   9    5    5        9     5    4    12    -     -    -    9    -
    speex    -   -    -    -        -     -    -     -    -     -    -    -    -
     ilbc    -   -    -    -        -     -    -     -    -     -    -    -    -
     g726   21   9    5    5        1     5    4    12   17     -    -    -    -
     g722    -   -    -    -        -     -    -     -    -     -    -    -    -
```

Figure 1

2) Set testing tools

Here, three tools are used: Sipp, tpcdump and wireshark. Please go to those official websites to get those tools. You must use tcpdump or wireshark to get a G729 code pcap file. The easy way to get G729 file is that, using Xlite-Pro version to call other SIP phone and record down the file with G729 codec by this:

```
tcpdump -T rtp -vvv dst 192.168.2.108 -w g729.pcap
```

This should capture the RTP stream from asterisk server and save it as g729.pcap file. You must make sure the Xlite-pro solely use G729 codec.

You also can use Wireshark to capture G729 codec and save as G729.pcap. Capturing the G729 RTP stream by Wireshark filter:

(ip.dst == 192.168.2.108) && (rtp.p_type == 18)

this will filter the G729 codec from 192.168.2.108. Once you get the G729 codec file, you put the file under pacp folder under Sipp:

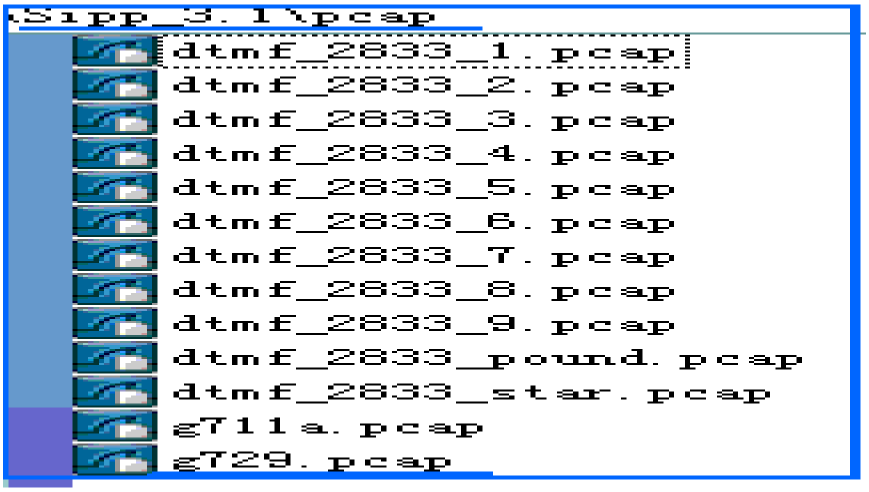


Figure 2

After that, you have to edit the uac_pcap.xml to make sure Sipp will play with RTP stream. You have to edit the uac_pcap.xml like this:

```
    Subject: Performance Test
    Content-Type: application/sdp
    Content-Length: [len]
    v=0
   o=user1 53655765 2353687637 IN IP[local_ip_type] [local_ip]
    s=-
    c=IN IP[local_ip_type] [local_ip]
   t=0 0
    m=audio [auto_media_port] RTP/AVP 8
    a=rtpmap:8 G729/8000 // change to g729 if test g729
  ]]>
 </send>
 <recv response="100" optional="true">
 </recv>
 <recv response="180" optional="true">
</recv>
<send>
  <![CDATA[
    ACK sip:[service]@[remote_ip]:[remote_port] SIP/2.0
    Via: SIP/2.0/[transport] [local_ip]:[local_port];branch=[branch]
   From: sipp <sip:sipp@[local_ip]:[local_port]>;tag=[call_number]
  To: sut <sip:[service]@[remote_ip]:[remote_port]>[peer_tag_param]
    Call-ID: [call_id]
  CSeq: 1 ACK
     Contact: sip:sipp@[local_ip]:[local_port]
     Max-Forwards: 70
     Subject: Performance Test
    Content-Length: 0
   ]]>
 </send>
 <!-- Play a pre-recorded PCAP file (RTP stream)                    -->
 <nop>
   <action>
     <exec play_pcap_audio="pcap/g729.pcap"/> // change to g729, if test g729
   </action>
```

Figure 3

Once the Sipp side is done, you have to add a sip account in asterisk server 1. The sip is named sipp. Please add an account in asterisk sip.conf. the SIP account information should like this:

```
[sipp]
type=friend
context=internal
host=192.168.2.111
port=6000
user=sipp
canreinvite=no
disallow=all
allow=g729
;allow=alaw
;allow=ulaw
```

Figure 4

And you add other sip (for example 1000) account with codec allow=ulaw or alaw only. SIP 1000 will forward the sip call from Spp to asterisk 2, in asterisk 2, some sound files will be played for certain periods. The dialplan in asterisk 1 likes this:

```
[internal]
; dummy extension just for
exten => 2005,1,Answer
exten => 2005,n,DIAL(SIP/1000@192.168.2.127,80,r)
exten => 2005,n,Hangup
```

Server Asterisk 2 IP

Figure 5

In this scenario, transcoding will be done from G729 to G711. If you do not set it properly, asterisk server will report codec compatibility error. The Sipp test can not be made, please double check that. Until this step, you can execute the Sipp command to test:

sipp –sf uac_pcap.xml –s 2005 192.168.2.108 –r 20 –rp 10000

sipp will call uac_pcap.xml file first, and go to asterisk dialplan, the context “internal” will be called with asterisk server 1. It will generate 20 calls in 10 seconds. You can test it with different time variables. You also can press =-*/ to increase the calls or decrease calls. You can monitor the calls during call connection time by running *sip show channels* under asterisk console, you will see the sipp using g729 and 1000 using ulaw. The figure shows this:

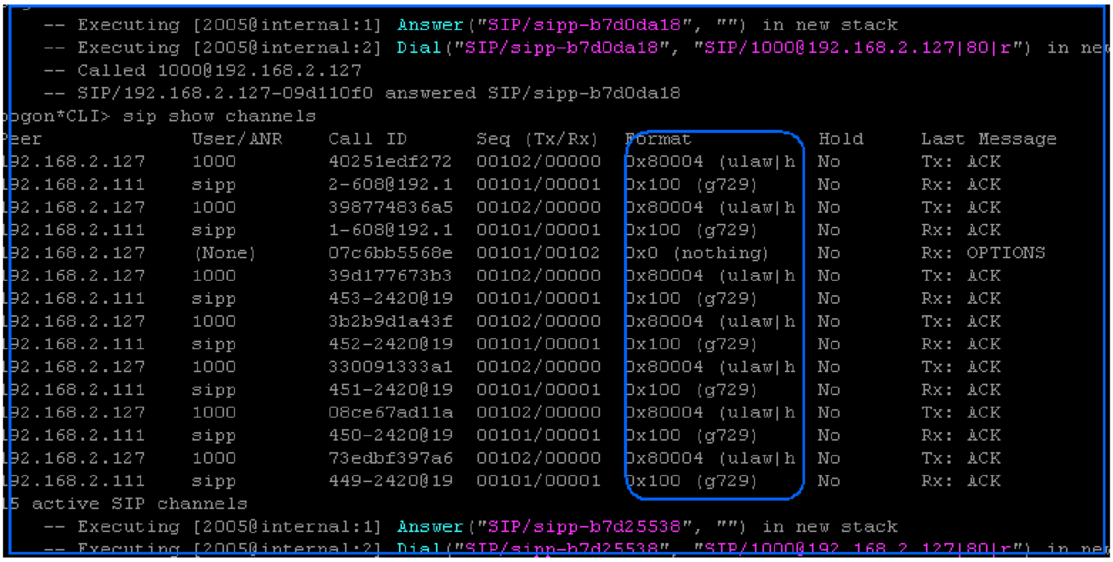


Figure 6

3) Result of Testing

The results are summarized to give users some statistical data. The scenarios are:

The scenario one:

Sipp(g711)->asterisk-1 with Atom CPU (g711)->asterisk-2(g711)

The scenario two:

Sipp(g729)->asterisk-1 with Atom CPU (g729->g711)->asterisk-2(g711)

After testing, the results are show as below:

G729->ulaw

	Usage of CPU	Current calls	Mem	CPS
10c-10s	40%	18	3.5	2
20c-10s	53%	24	3.5	2
25c-10s	70%	30	3.5	3
30c-10s	93%	36	3.5	3
Ulaw->ulaw				
	Usage of CPU	Current calls	Mem	CPS
10c-10s	9%	12	3.5	1
20c-10s	10%	24	3.5	1
25c-10s	17%	30	3.5	2
30c-10s	17%	37	3.5	3

Table 1

Measurement: calls in 10 seconds, for example: 10c-10s means sipp will generate 10 calls in 10 second.

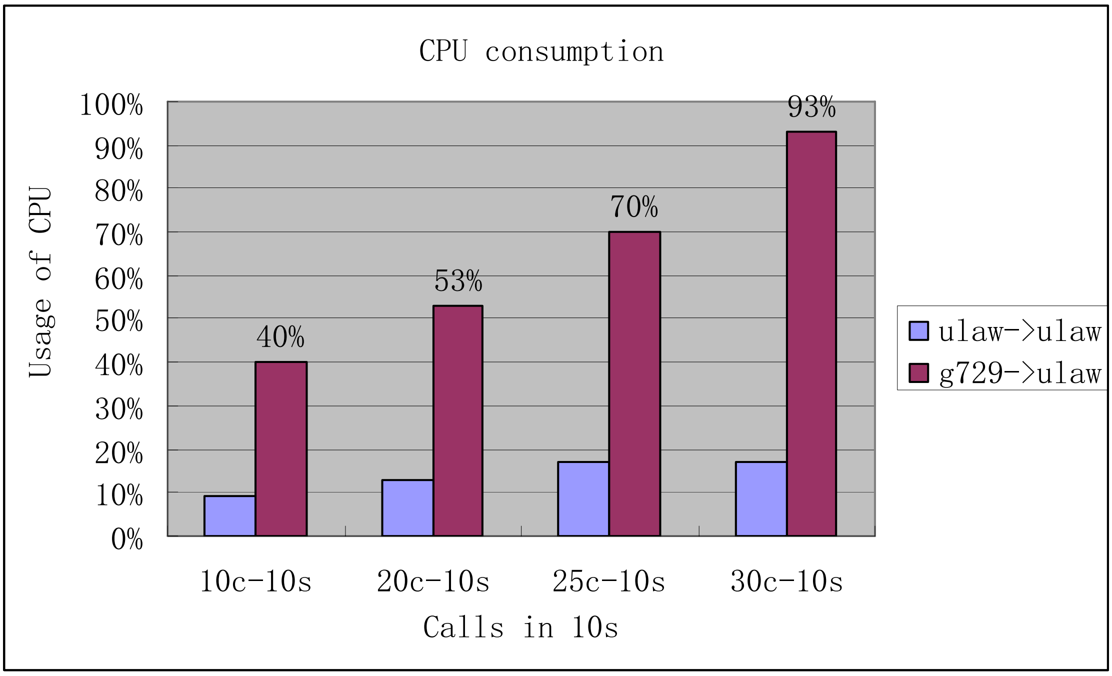


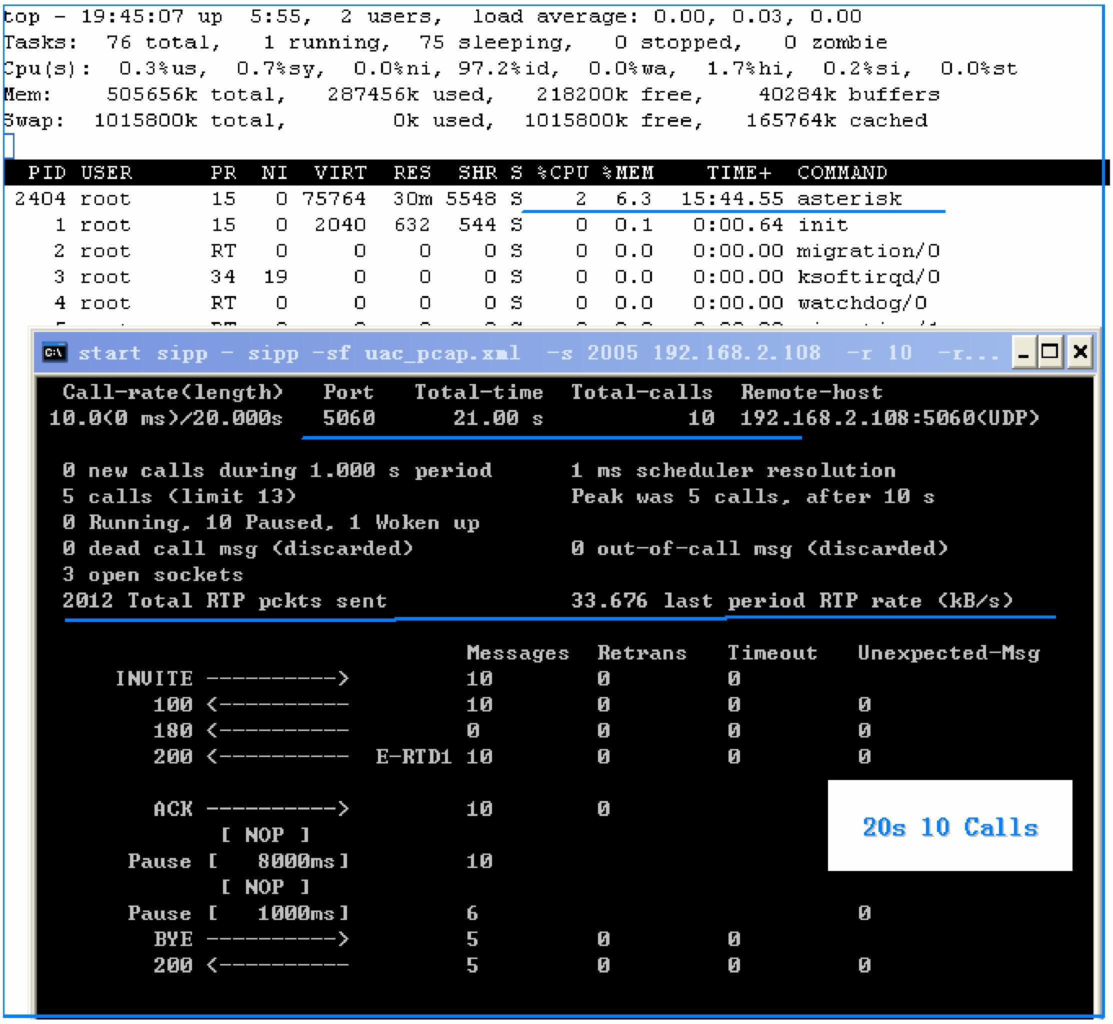
Figure 7

In conclusion, codec contanscoding will consume much CPU resource. During the test, some factors must be considered. They are duration of each events, codecs, length of RTP streams, condition of Lan transmission, Network cards of asterisk servers. For Intel Atom CPU, the current calls should be limited less 30 calls. When the peak time reaches, the SIP calls will generate some warning. For further test improvement, it is very necessary to make a further investigation with g729 codec under Sipp RTP test for more accurate result.

Some screens captured for reference:

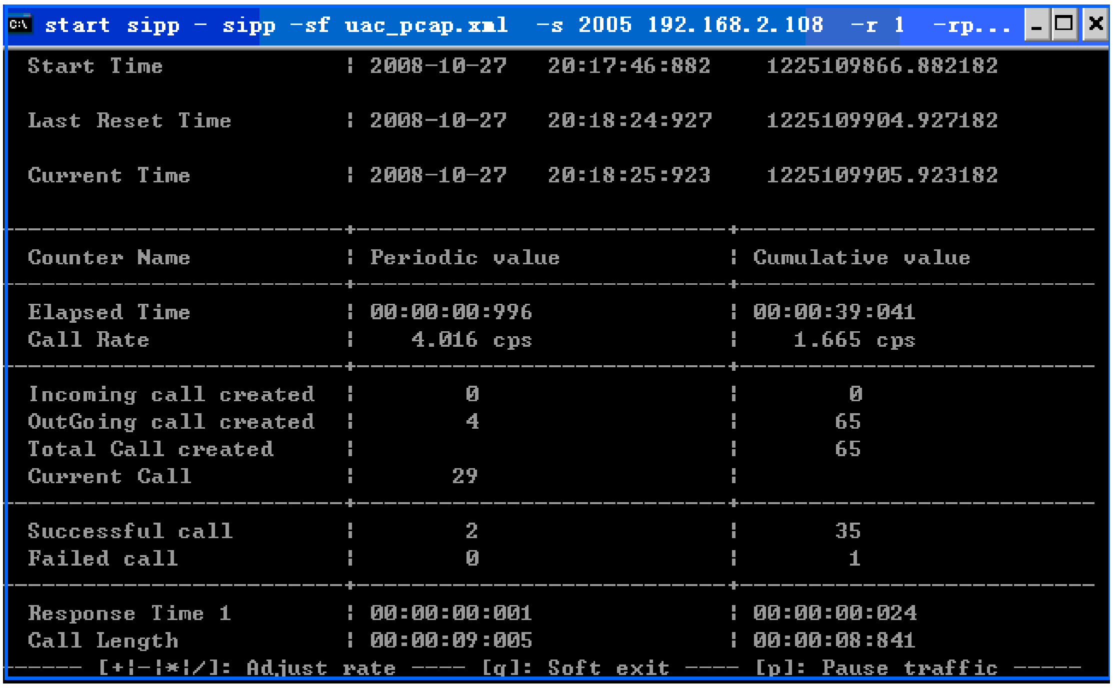
The scenario one:

Sipp(ulaw)=>Asterisk1(ulaw)=>asterisk2(ulaw)



```
top - 19:45:07 up  5:55,  2 users,  load average: 0.00, 0.03, 0.00
Tasks:  76 total,   1 running,  75 sleeping,   0 stopped,   0 zombie
Cpu(s):  0.3%us,  0.7%sy,  0.0%ni, 97.2%id,  0.0%wa,  1.7%hi,  0.2%si,  0.0%st
Mem:    505656k total,   287456k used,   218200k free,    40284k buffers
Swap:  1015800k total,        0k used,  1015800k free,   165764k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 2404 root      15   0 75764  30m 5548 S    2  6.3  15:44.55 asterisk
    1 root      15   0  2040  632  544 S    0  0.1   0:00.64 init
    2 root      RT   0     0    0    0 S    0  0.0   0:00.00 migration/0
    3 root      34  19     0    0    0 S    0  0.0   0:00.00 ksoftirqd/0
    4 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/0

start sipp - sipp -sf uac_pcap.xml  -s 2005 192.168.2.108  -r 10  -r...

  Call-rate(length)   Port   Total-time  Total-calls  Remote-host
 10.0(0 ms)/20.000s   5060      21.00 s           10  192.168.2.108:5060(UDP)

  0 new calls during 1.000 s period      1 ms scheduler resolution
  5 calls (limit 13)                     Peak was 5 calls, after 10 s
  0 Running, 10 Paused, 1 Woken up
  0 dead call msg (discarded)            0 out-of-call msg (discarded)
  3 open sockets
  2012 Total RTP pckts sent              33.676 last period RTP rate (kB/s)

                                Messages  Retrans   Timeout   Unexpected-Msg
      INVITE ---------->        10        0         0
         100 <----------        10        0         0         0
         180 <----------        0         0         0         0
         200 <----------  E-RTD1 10        0         0         0

         ACK ---------->        10        0
              [ NOP ]
       Pause [    8000ms]       10
              [ NOP ]
       Pause [    1000ms]       6                             0
         BYE ---------->        5         0         0
         200 <----------        5         0         0         0

20s 10 Calls
```

40s, Cpu 30%, increased by 5 calls in 5 s



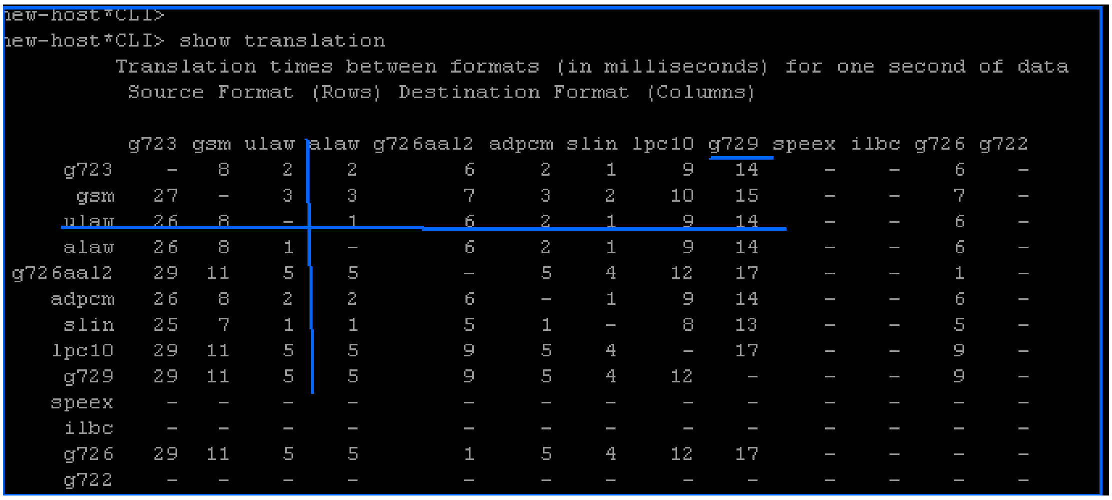
```
start sipp - sipp -sf uac_pcap.xml  -s 2005 192.168.2.108  -r 1  -rp...
  Start Time               | 2008-10-27   20:17:46:882    1225109866.882182

  Last Reset Time          | 2008-10-27   20:18:24:927    1225109904.927182

  Current Time             | 2008-10-27   20:18:25:923    1225109905.923182

-------------------------+---------------------------+--------------------------
  Counter Name           | Periodic value            | Cumulative value
-------------------------+---------------------------+--------------------------
  Elapsed Time           | 00:00:00:996              | 00:00:39:041
  Call Rate              |    4.016 cps              |    1.665 cps
-------------------------+---------------------------+--------------------------
  Incoming call created  |        0                  |        0
  OutGoing call created  |        4                  |       65
  Total Call created     |                           |       65
  Current Call           |       29                  |
-------------------------+---------------------------+--------------------------
  Successful call        |        2                  |       35
  Failed call            |        0                  |        1
-------------------------+---------------------------+--------------------------
  Response Time 1        | 00:00:00:001              | 00:00:00:024
  Call Length            | 00:00:09:005              | 00:00:08:841
------ [+|-|*|/]: Adjust rate ---- [q]: Soft exit ---- [p]: Pause traffic -----
```

The scenario two:

Sipp(g729)=>Asterisk-1(g729->ulaw)=>asterisk-2(ulaw)

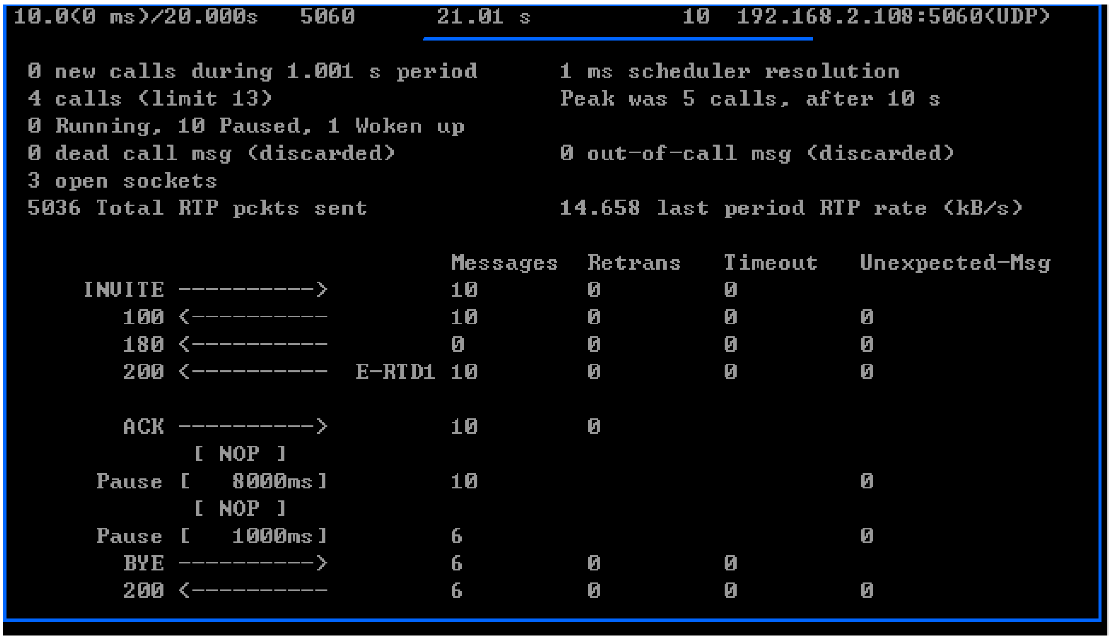
Case 1

Cpu 15% asterisk, 20s, 10 calls



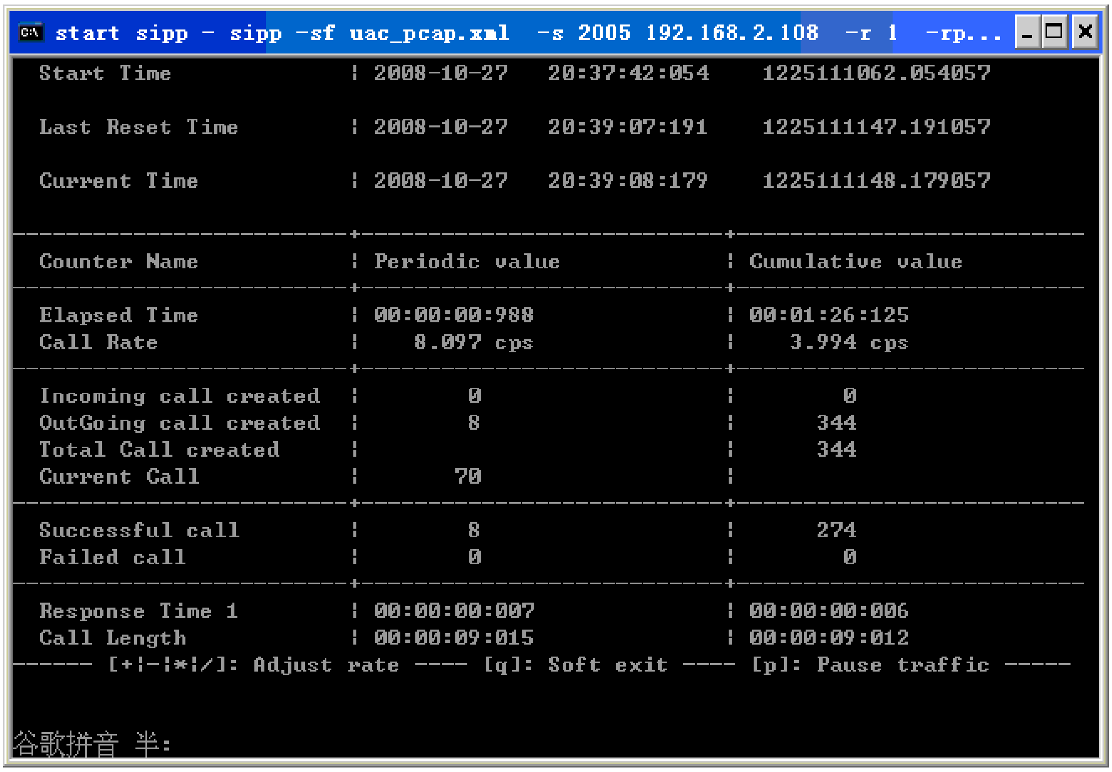
new-host*CLI>
new-host*CLI> show translation
Translation times between formats (in milliseconds) for one second of data
Source Format (Rows) Destination Format (Columns)

	g723	gsm	ulaw	alaw	g726aal2	adpcm	slin	lpc10	g729	speex	ilbc	g726	g722
g723	-	8	2	2	6	2	1	9	14	-	-	6	-
gsm	27	-	3	3	7	3	2	10	15	-	-	7	-
ulaw	26	8	-	1	6	2	1	9	14	-	-	6	-
alaw	26	8	1	-	6	2	1	9	14	-	-	6	-
g726aal2	29	11	5	5	-	5	4	12	17	-	-	1	-
adpcm	26	8	2	2	6	-	1	9	14	-	-	6	-
slin	25	7	1	1	5	1	-	8	13	-	-	5	-
lpc10	29	11	5	5	9	5	4	-	17	-	-	9	-
g729	29	11	5	5	9	5	4	12	-	-	-	9	-
speex	-	-	-	-	-	-	-	-	-	-	-	-	-
ilbc	-	-	-	-	-	-	-	-	-	-	-	-	-
g726	29	11	5	5	1	5	4	12	17	-	-	-	-
g722	-	-	-	-	-	-	-	-	-	-	-	-	-



```
10.0(0 ms)/20.000s   5060      21.01 s          10  192.168.2.108:5060(UDP)

 0 new calls during 1.001 s period       1 ms scheduler resolution
 4 calls (limit 13)                      Peak was 5 calls, after 10 s
 0 Running, 10 Paused, 1 Woken up
 0 dead call msg (discarded)             0 out-of-call msg (discarded)
 3 open sockets
 5036 Total RTP pckts sent               14.658 last period RTP rate (kB/s)

                                 Messages  Retrans   Timeout   Unexpected-Msg
     INVITE ---------->          10        0         0
        100 <----------          10        0         0         0
        180 <----------          0         0         0         0
        200 <----------  E-RTD1  10        0         0         0

        ACK ---------->          10        0
             [ NOP ]
      Pause [   8000ms]          10                            0
             [ NOP ]
      Pause [   1000ms]          6                             0
        BYE ---------->          6         0         0
        200 <----------          6         0         0         0
```

CPU over 80%, increased by 5 calls in 5s

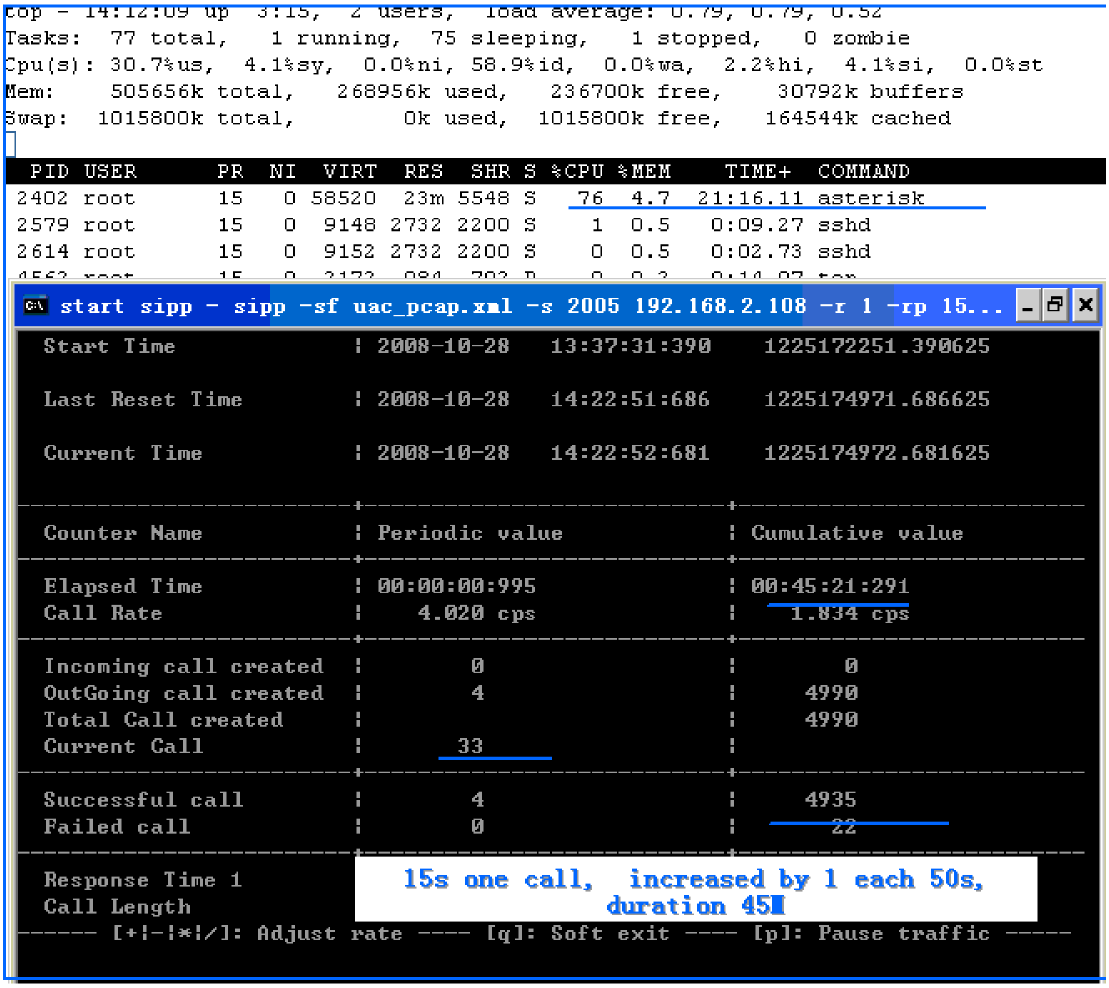


```
start sipp - sipp -sf uac_pcap.xml  -s 2005 192.168.2.108  -r 1  -rp...
  Start Time                | 2008-10-27   20:37:42:054    1225111062.054057

  Last Reset Time           | 2008-10-27   20:39:07:191    1225111147.191057

  Current Time              | 2008-10-27   20:39:08:179    1225111148.179057

-------------------------+---------------------------+--------------------------
  Counter Name              | Periodic value            | Cumulative value
-------------------------+---------------------------+--------------------------
  Elapsed Time              | 00:00:00:988              | 00:01:26:125
  Call Rate                 |    8.097 cps              |    3.994 cps
-------------------------+---------------------------+--------------------------
  Incoming call created     |        0                  |        0
  OutGoing call created     |        8                  |      344
  Total Call created        |                           |      344
  Current Call              |       70                  |
-------------------------+---------------------------+--------------------------
  Successful call           |        8                  |      274
  Failed call               |        0                  |        0
-------------------------+---------------------------+--------------------------
  Response Time 1           | 00:00:00:007              | 00:00:00:006
  Call Length               | 00:00:09:015              | 00:00:09:012
------ [+|-|*|/]: Adjust rate ---- [q]: Soft exit ---- [p]: Pause traffic -----

谷歌拼音 半:
```

```
top - 20:29:32 up  6:39,  2 users,  load average: 6.60, 1.86, 0.69
Tasks:  76 total,   3 running,  73 sleeping,   0 stopped,   0 zombie
Cpu(s): 79.4%us,  9.5%sy,  0.0%ni,  2.0%id,  0.0%wa,  3.6%hi,  5.5%si,  0.0%st
Mem:    505656k total,   301636k used,   204020k free,    44272k buffers
Swap:  1015800k total,        0k used,  1015800k free,   167132k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 2404 root      15   0 85712  38m 5556 S  196  7.8  24:32.29 asterisk
    1 root      15   0  2040  632  544 S    0  0.1   0:00.64 init
    2 root      RT   0     0    0    0 S    0  0.0   0:00.00 migration/0
    3 root      34  19     0    0    0 S    0  0.0   0:00.00 ksoftirqd/0
    4 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/0
    5 root      RT   0     0    0    0 S    0  0.0   0:00.00 migration/1
    6 root      34  19     0    0    0 S    0  0.0   0:00.00 ksoftirqd/1
    7 root      RT   0     0    0    0 S    0  0.0   0:00.00 watchdog/1
    8 root      10  -5     0    0    0 S    0  0.0   0:00.00 events/0
    9 root      10  -5     0    0    0 S    0  0.0   0:00.00 events/1
   10 root      10  -5     0    0    0 S    0  0.0   0:00.01 khelper
   11 root      10  -5     0    0    0 S    0  0.0   0:00.00 kthread
   15 root      10  -5     0    0    0 S    0  0.0   0:00.00 kblockd/0
   16 root      10  -5     0    0    0 S    0  0.0   0:00.00 kblockd/1
   17 root      16  -5     0    0    0 S    0  0.0   0:00.00 kacpid
  109 root      16  -5     0    0    0 S    0  0.0   0:00.00 cqueue/0
  110 root      16  -5     0    0    0 S    0  0.0   0:00.00 cqueue/1
  113 root      10  -5     0    0    0 S    0  0.0   0:00.00 khubd
  115 root      10  -5     0    0    0 S    0  0.0   0:00.00 kseriod
  182 root      21   0     0    0    0 S    0  0.0   0:00.00 pdflush
  183 root      15   0     0    0    0 S    0  0.0   0:00.02 pdflush
  184 root      17  -5     0    0    0 S    0  0.0   0:00.00 kswapd0
  185 root      17  -5     0    0    0 S    0  0.0   0:00.00 aio/0
  186 root      17  -5     0    0    0 S    0  0.0   0:00.00 aio/1
  352 root      11  -5     0    0    0 S    0  0.0   0:00.00 kpsmoused
```

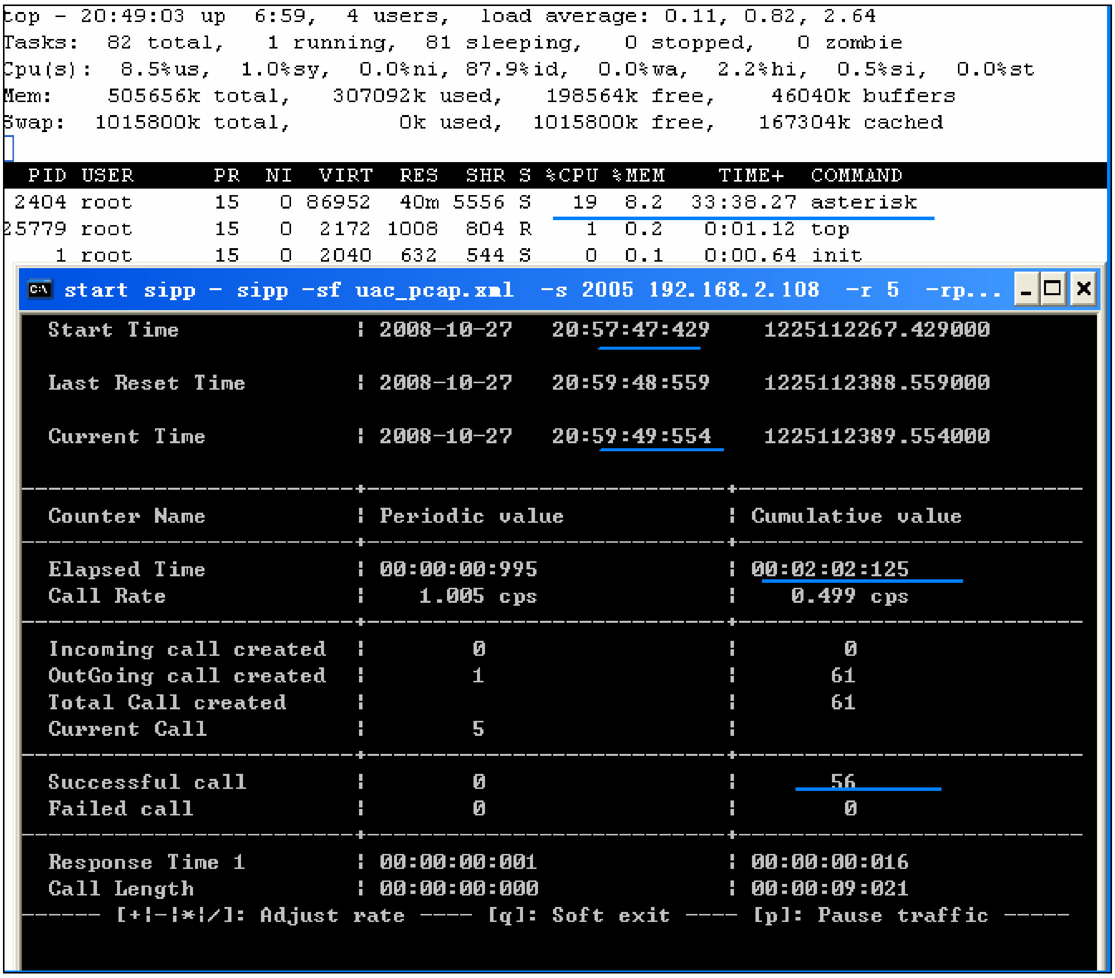
Case 2:

1 call in 5s, after 40 m, the sip calls failed.



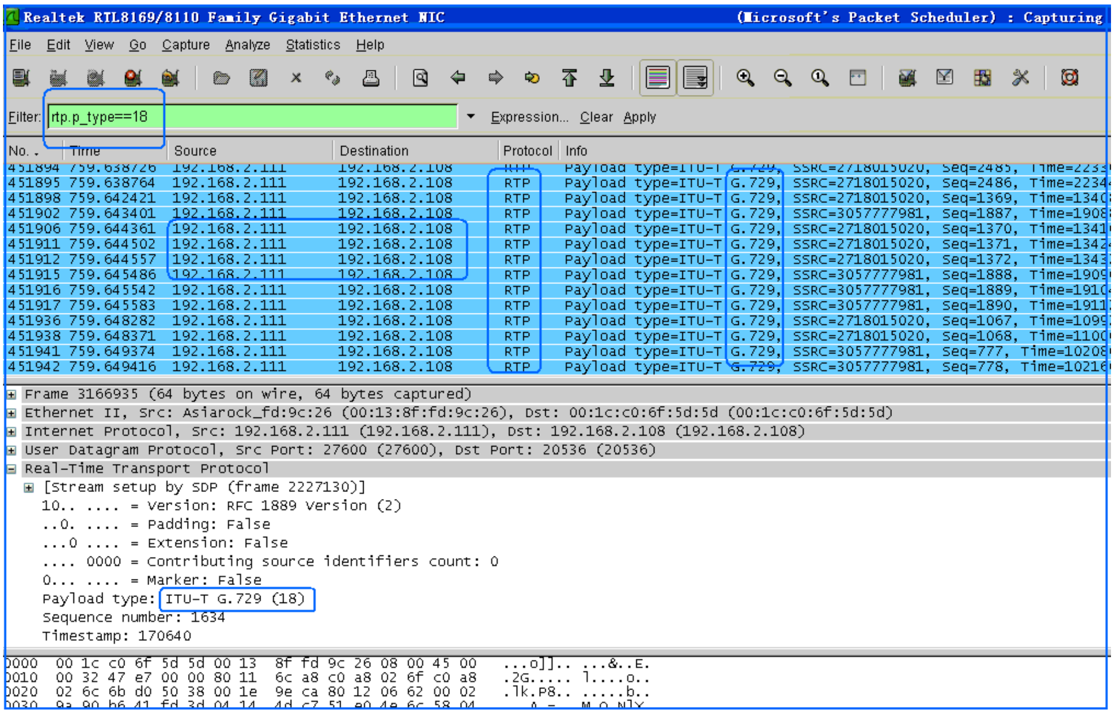
Case 3:

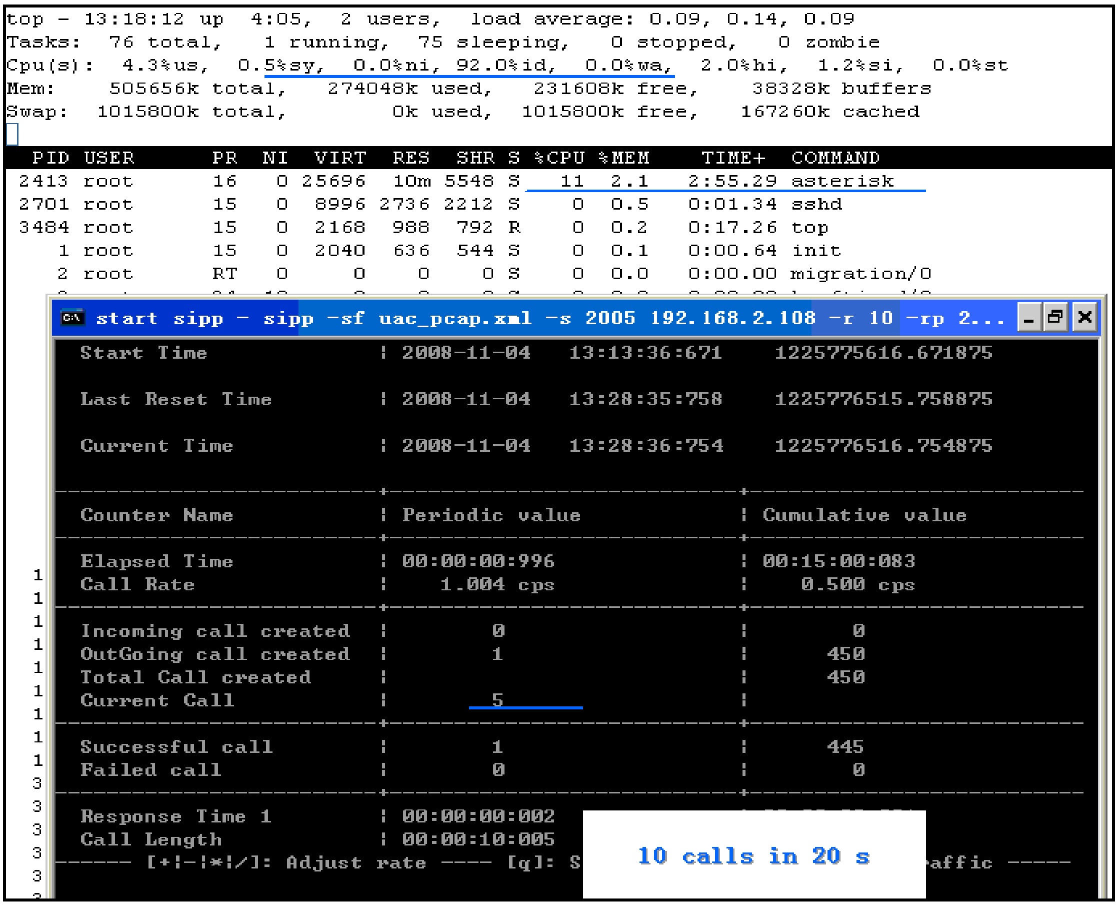
5 calls in 10s



```
top - 20:49:03 up  6:59,  4 users,  load average: 0.11, 0.82, 2.64
Tasks:  82 total,   1 running,  81 sleeping,   0 stopped,   0 zombie
Cpu(s):  8.5%us,  1.0%sy,  0.0%ni, 87.9%id,  0.0%wa,  2.2%hi,  0.5%si,  0.0%st
Mem:    505656k total,   307092k used,   198564k free,    46040k buffers
Swap:  1015800k total,        0k used,  1015800k free,   167304k cached

  PID USER      PR  NI  VIRT  RES  SHR S %CPU %MEM    TIME+  COMMAND
 2404 root      15   0 86952  40m 5556 S   19  8.2  33:38.27 asterisk
25779 root      15   0  2172 1008  804 R    1  0.2   0:01.12 top
    1 root      15   0  2040  632  544 S    0  0.1   0:00.64 init

start sipp - sipp -sf uac_pcap.xml  -s 2005 192.168.2.108  -r 5  -rp...

  Start Time             | 2008-10-27   20:57:47:429    1225112267.429000

  Last Reset Time        | 2008-10-27   20:59:48:559    1225112388.559000

  Current Time           | 2008-10-27   20:59:49:554    1225112389.554000

-------------------------+---------------------------+--------------------------
  Counter Name           | Periodic value            | Cumulative value
-------------------------+---------------------------+--------------------------
  Elapsed Time           | 00:00:00:995              | 00:02:02:125
  Call Rate              |    1.005 cps              |    0.499 cps
-------------------------+---------------------------+--------------------------
  Incoming call created  |        0                  |        0
  OutGoing call created  |        1                  |       61
  Total Call created     |                           |       61
  Current Call           |        5                  |
-------------------------+---------------------------+--------------------------
  Successful call        |        0                  |       56
  Failed call            |        0                  |        0
-------------------------+---------------------------+--------------------------
  Response Time 1        | 00:00:00:001              | 00:00:00:016
  Call Length            | 00:00:00:000              | 00:00:09:021
------ [+|-|*|/]: Adjust rate ---- [q]: Soft exit ---- [p]: Pause traffic -----
```

Case 4:


Realtek RTL8169/8110 Family Gigabit Ethernet NIC (Microsoft's Packet Scheduler) : Capturing
File Edit View Go Capture Analyze Statistics Help
Filter: rtp.p_type==18
Expression... Clear Apply
No. . Time Source Destination Protocol Info
451895 759.638764 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=2718015020, Seq=2486
451898 759.642421 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=2718015020, Seq=1369
451902 759.643401 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=3057777981, Seq=1887
451906 759.644361 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=2718015020, Seq=1370
451911 759.644502 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=2718015020, Seq=1371
451912 759.644557 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=2718015020, Seq=1372
451915 759.645486 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=3057777981, Seq=1888
451916 759.645542 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=3057777981, Seq=1889
451917 759.645583 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=3057777981, Seq=1890
451936 759.648282 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=2718015020, Seq=1067
451938 759.648371 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=2718015020, Seq=1068
451941 759.649374 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=3057777981, Seq=777
451942 759.649416 192.168.2.111 192.168.2.108 RTP Payload type=ITU-T G.729, SSRC=3057777981, Seq=778
Frame 3166935 (64 bytes on wire, 64 bytes captured)
Ethernet II, Src: Asiarock_fd:9c:26 (00:13:8f:fd:9c:26), Dst: 00:1c:c0:6f:5d:5d (00:1c:c0:6f:5d:5d)
Internet Protocol, Src: 192.168.2.111 (192.168.2.111), Dst: 192.168.2.108 (192.168.2.108)
User Datagram Protocol, Src Port: 27600 (27600), Dst Port: 20536 (20536)
Real-Time Transport Protocol
[Stream setup by SDP (frame 2227130)]
10.. .... = Version: RFC 1889 Version (2)
..0. .... = Padding: False
...0 .... = Extension: False
.... 0000 = Contributing source identifiers count: 0
0... .... = Marker: False
Payload type: ITU-T G.729 (18)
Sequence number: 1634
Timestamp: 170640


top - 13:18:12 up 4:05, 2 users, load average: 0.09, 0.14, 0.09
Tasks: 76 total, 1 running, 75 sleeping, 0 stopped, 0 zombie
Cpu(s): 4.3%us, 0.5%sy, 0.0%ni, 92.0%id, 0.0%wa, 2.0%hi, 1.2%si, 0.0%st
Mem: 505656k total, 274048k used, 231608k free, 38328k buffers
Swap: 1015800k total, 0k used, 1015800k free, 167260k cached
PID USER PR NI VIRT RES SHR S %CPU %MEM TIME+ COMMAND
2413 root 16 0 25696 10m 5548 S 11 2.1 2:55.29 asterisk
2701 root 15 0 8996 2736 2212 S 0 0.5 0:01.34 sshd
3484 root 15 0 2168 988 792 R 0 0.2 0:17.26 top
1 root 15 0 2040 636 544 S 0 0.1 0:00.64 init
2 root RT 0 0 0 0 S 0 0.0 0:00.00 migration/0
start sipp - sipp -sf uac_pcap.xml -s 2005 192.168.2.108 -r 10 -rp 2...
Start Time : 2008-11-04 13:13:36:671 1225775616.671875
Last Reset Time : 2008-11-04 13:28:35:758 1225776515.758875
Current Time : 2008-11-04 13:28:36:754 1225776516.754875
Counter Name : Periodic value : Cumulative value
Elapsed Time : 00:00:00:996 : 00:15:00:083
Call Rate : 1.004 cps : 0.500 cps
Incoming call created : 0 : 0
OutGoing call created : 1 : 450
Total Call created : : 450
Current Call : 5 :
Successful call : 1 : 445
Failed call : 0 : 0
Response Time 1 : 00:00:00:002
Call Length : 00:00:10:005
------ [+|-|*|/]: Adjust rate ---- [q]: S
10 calls in 20 s
affic ------

```
   -- Executing [2005@internal:1] Answer("SIP/sipp-b7d0da18", "") in new stack
   -- Executing [2005@internal:2] Dial("SIP/sipp-b7d0da18", "SIP/1000@192.168.2.127|80|r") in new
   -- Called 1000@192.168.2.127
   -- SIP/192.168.2.127-09d110f0 answered SIP/sipp-b7d0da18
bogon*CLI> sip show channels
Peer             User/ANR    Call ID      Seq (Tx/Rx)  Format           Hold    Last Message
192.168.2.127    1000        40251edf272  00102/00000  0x80004 (ulaw|h  No      Tx: ACK
192.168.2.111    sipp        2-608@192.1  00101/00001  0x100 (g729)     No      Rx: ACK
192.168.2.127    1000        398774836a5  00102/00000  0x80004 (ulaw|h  No      Tx: ACK
192.168.2.111    sipp        1-608@192.1  00101/00001  0x100 (g729)     No      Rx: ACK
192.168.2.127    (None)      07c6bb5568e  00101/00102  0x0 (nothing)    No      Rx: OPTIONS
192.168.2.127    1000        39d177673b3  00102/00000  0x80004 (ulaw|h  No      Tx: ACK
192.168.2.111    sipp        453-2420@19  00101/00001  0x100 (g729)     No      Rx: ACK
192.168.2.127    1000        3b2b9d1a43f  00102/00000  0x80004 (ulaw|h  No      Tx: ACK
192.168.2.111    sipp        452-2420@19  00101/00001  0x100 (g729)     No      Rx: ACK
192.168.2.127    1000        330091333a1  00102/00000  0x80004 (ulaw|h  No      Tx: ACK
192.168.2.111    sipp        451-2420@19  00101/00001  0x100 (g729)     No      Rx: ACK
192.168.2.127    1000        08ce67ad11a  00102/00000  0x80004 (ulaw|h  No      Tx: ACK
192.168.2.111    sipp        450-2420@19  00101/00001  0x100 (g729)     No      Rx: ACK
192.168.2.127    1000        73edbf397a6  00102/00000  0x80004 (ulaw|h  No      Tx: ACK
192.168.2.111    sipp        449-2420@19  00101/00001  0x100 (g729)     No      Rx: ACK
15 active SIP channels
   -- Executing [2005@internal:1] Answer("SIP/sipp-b7d25538", "") in new stack
   -- Executing [2005@internal:2] Dial("SIP/sipp-b7d25538", "SIP/1000@192.168.2.127|80|r") in new
```

CPU information:

```
[root@new-host ~]# cat /proc/cpuinfo
processor       : 0
vendor_id       : GenuineIntel
cpu family      : 6
model           : 28
model name      : Intel(R) Atom(TM) CPU  230   @ 1.60GHz
stepping        : 2
cpu MHz         : 1596.208
cache size      : 512 KB
physical id     : 0
siblings        : 2
core id         : 0
cpu cores       : 1
fdiv_bug        : no
hlt_bug         : no
f00f_bug        : no
coma_bug        : no
fpu             : yes
fpu_exception   : yes
cpuid level     : 10
wp              : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic mtrr
t_tsc pni monitor ds_cpl tm2 cx16 xtpr lahf_lm
bogomips        : 3257.81

processor       : 1
vendor_id       : GenuineIntel
cpu family      : 6
model           : 28
model name      : Intel(R) Atom(TM) CPU  230   @ 1.60GHz
stepping        : 2
cpu MHz         : 1596.208
cache size      : 512 KB
physical id     : 0
siblings        : 2
core id         : 0
cpu cores       : 1
fdiv_bug        : no
hlt_bug         : no
f00f_bug        : no
coma_bug        : no
fpu             : yes
fpu_exception   : yes
cpuid level     : 10
wp              : yes
flags           : fpu vme de pse tsc msr pae mce cx8 apic mtrr
t_tsc pni monitor ds_cpl tm2 cx16 xtpr lahf_lm
bogomips        : 3191.77

[root@new-host ~]#
```

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Test environments:

Cnetos-5.0

Intel Atom 230 CPU

Tools: Sipp-3.1, tcpdump and Wireshark

Asterisk-1.4.21