Repeatability Test

Young-Kyoon Suh

March 30, 2017

1 Description

This document presents two sets of histograms based on the two runs of a program under test, called *INC*, with a set of increasing task lengths from 1 second to 4096 seconds. We would like to see if both of the sets have the same shape for the same task length. If so then, we can say that run repeatability is satisfied in our experiment setting.

2 Experiment Notes

Table 1 provides a short description of our experimental runs, on which the following histograms are based.

Machine	Task Length (sec)	Description	Experiment Period
sodb9	INC1∼INC64	Two runs with 1000 samples	2017-03-02 ∼ 2017-03-?? / 2017-03-?? ∼ 2017-03-??
sodb9	INC128∼INC1024	Two runs with 300 samples	2017-03-02 ∼ 2017-03-?? / 2017-03-?? ∼ 2017-03-??
sodb10	INC2048	Two runs of 300 samples	2017-03-02 ∼ 2017-03-09 / 2017-03-13 ∼ 2017-03-20
sodb12	INC4096	Two runs of 300 samples	2017-02-13 ∼ 2017-02-27 / 2017-03-02 ∼ 2017-03-17

Table 1: Notes on experiment runs used for histograms

Now we show histograms of elapsed time (ET) and process time (PT) of INC.

3 Histograms on the First Run

This section exhibits histograms on the first run of INC with its task length increasing from 1 second to 4096 seconds, via EMPv5. The detailed description of the base data is from Table 1.

3.1 ET

(a) ET frequency on INC1

(b) ET frequency on INC2

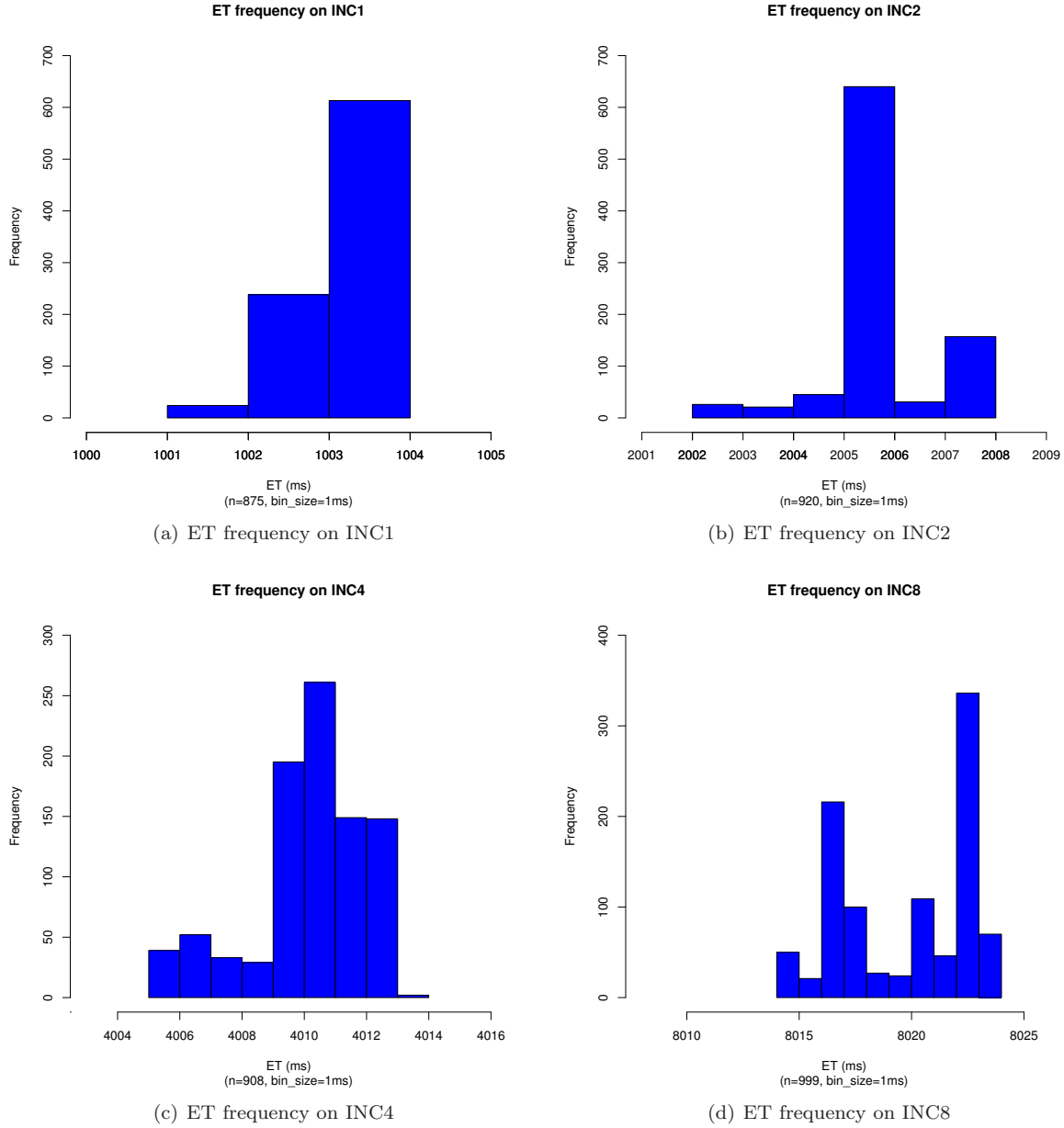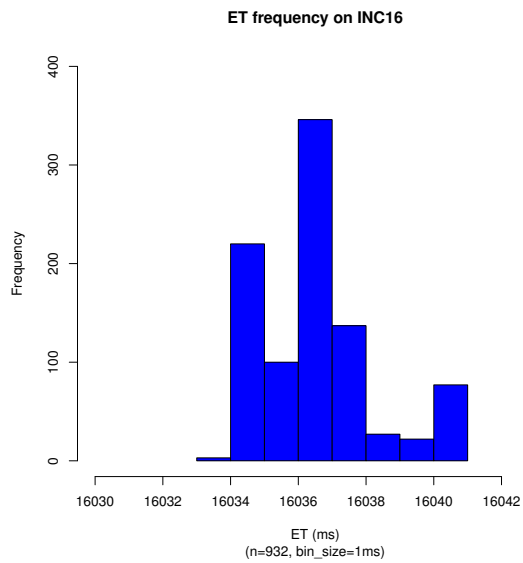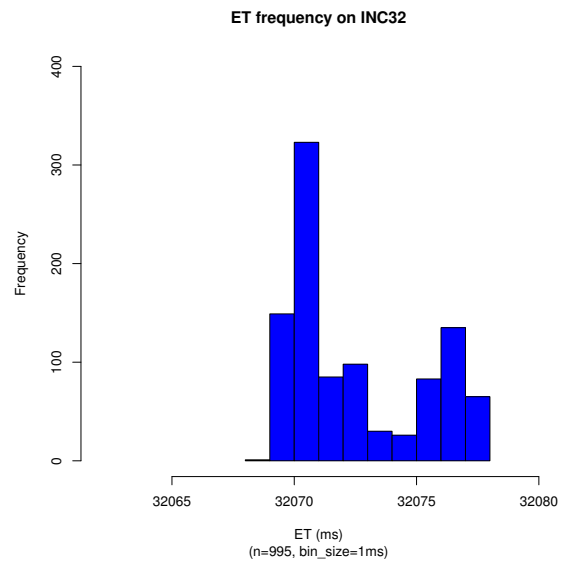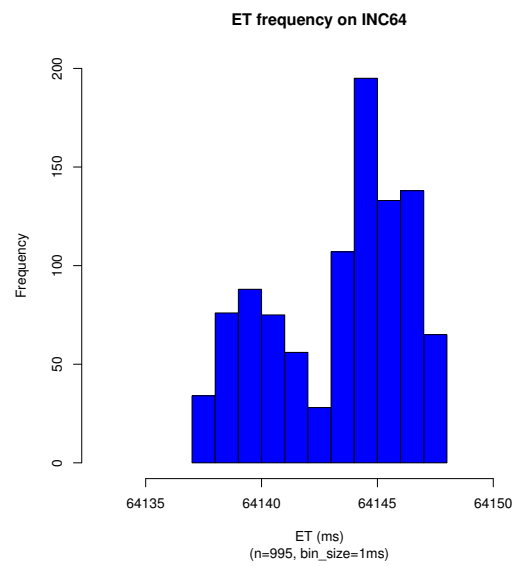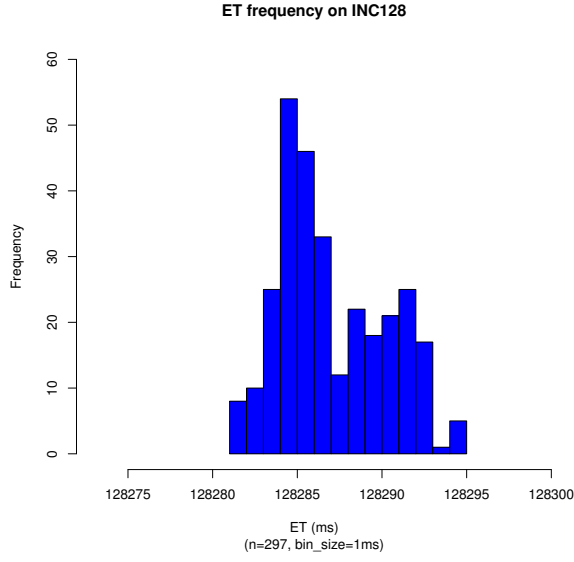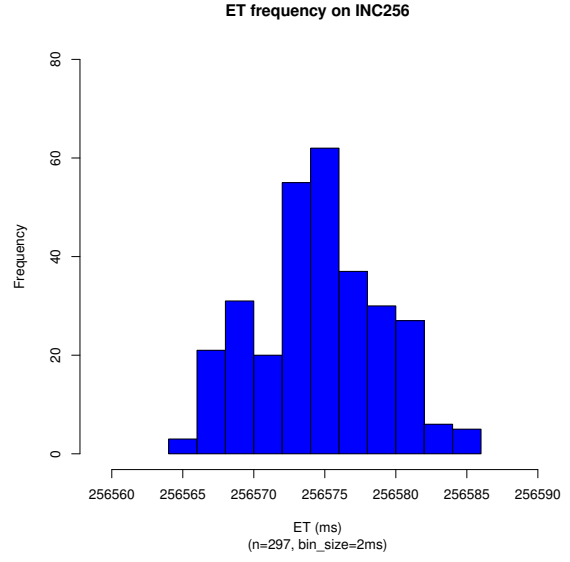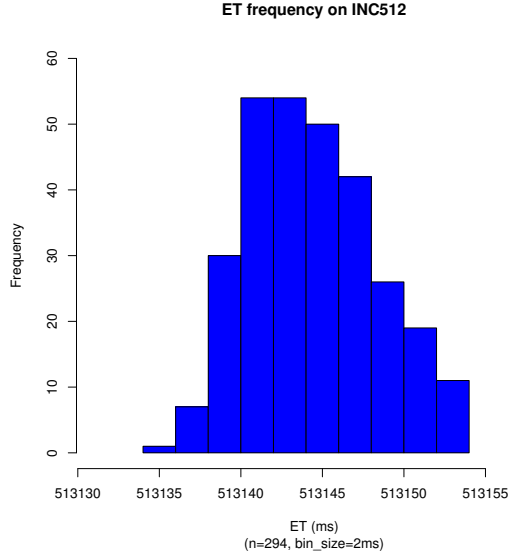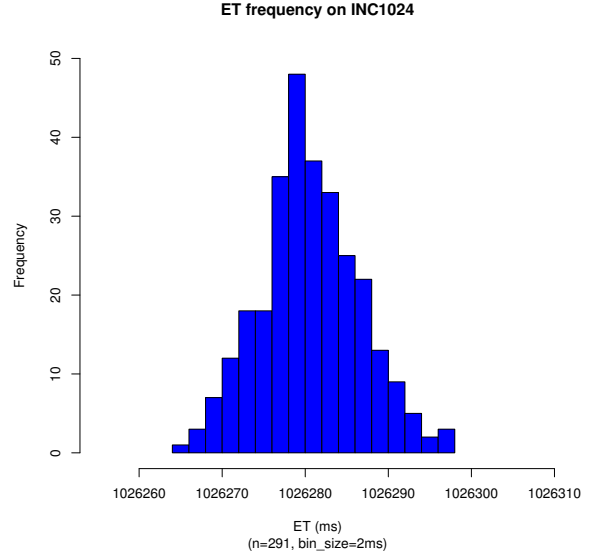(c) ET frequency on INC4

(d) ET frequency on INC8

Figure 1: ET Histograms of INC1 ... INC8

(a) ET frequency on INC16

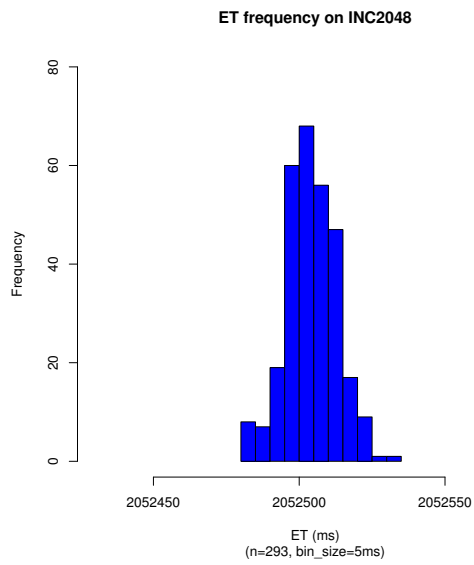
(b) ET frequency on INC32

(c) ET frequency on INC64

Figure 2: ET Histograms of INC16 ... INC64

(a) ET frequency on INC128
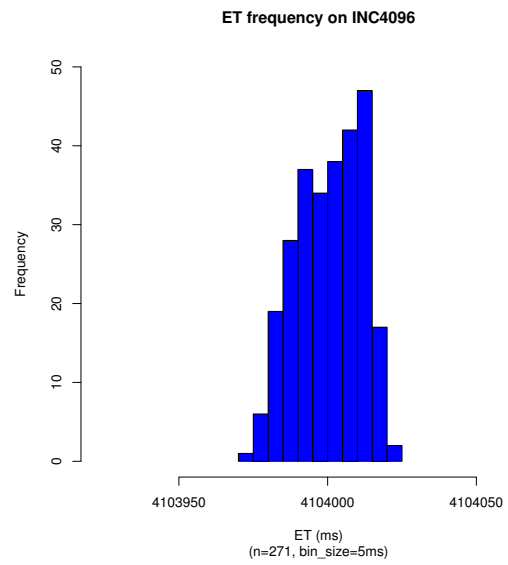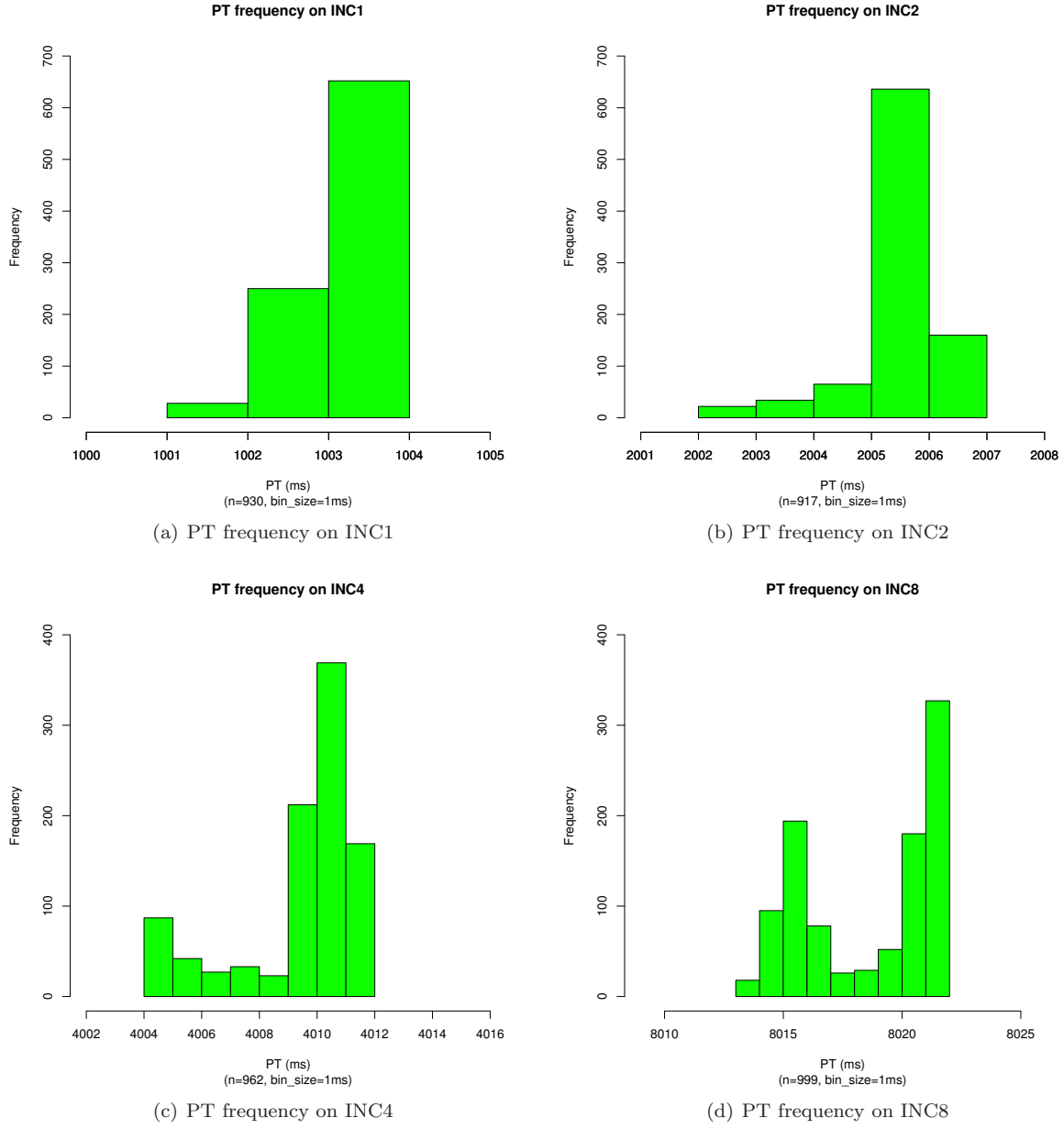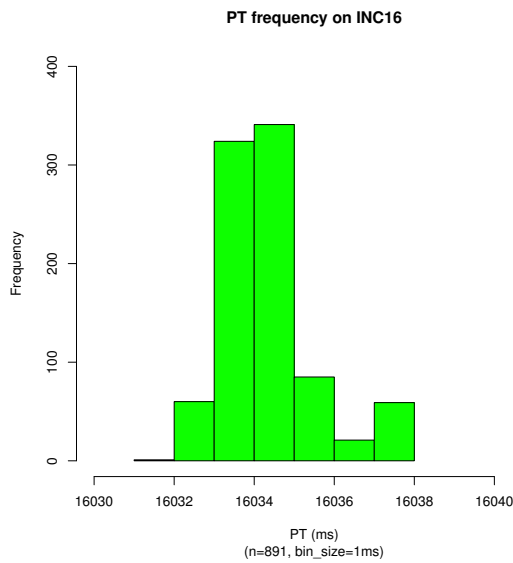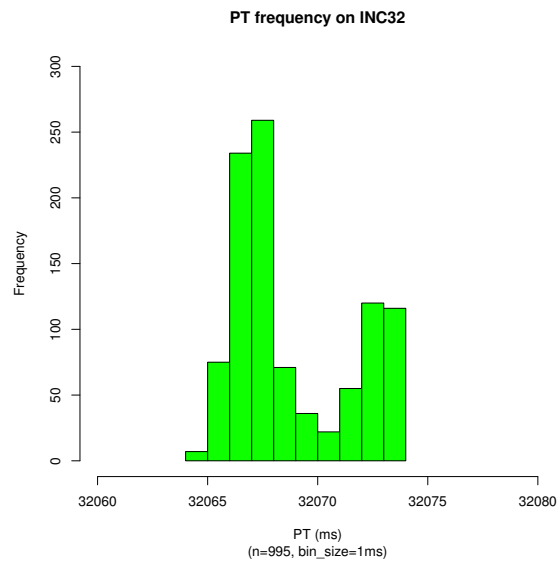
(b) ET frequency on INC256

(c) ET frequency on INC512

(d) ET frequency on INC1024

Figure 3: ET Histograms of INC128 ... INC1024

4

ET frequency on INC2048

Frequency

80

60

40

20

0

2052450　　2052500　　2052550

ET (ms)
(n=293, bin_size=5ms)

(a) ET frequency on INC2048

ET frequency on INC4096

Frequency

50

40

30

20

10

0

4103950　　4104000　　4104050

ET (ms)
(n=271, bin_size=5ms)

(b) ET frequency on INC4096

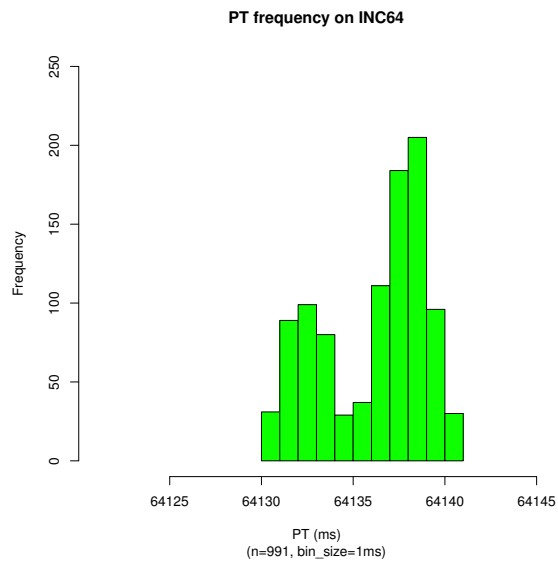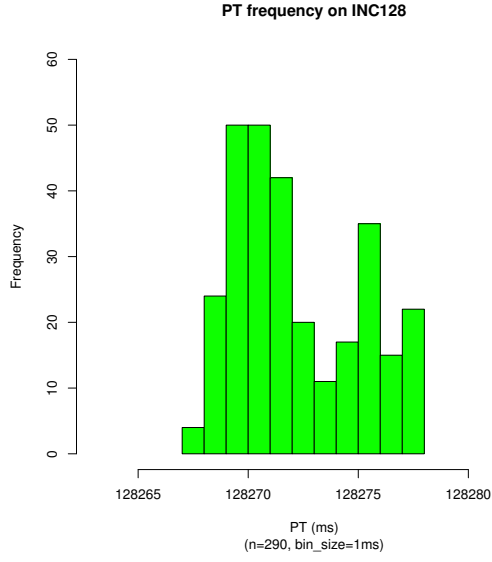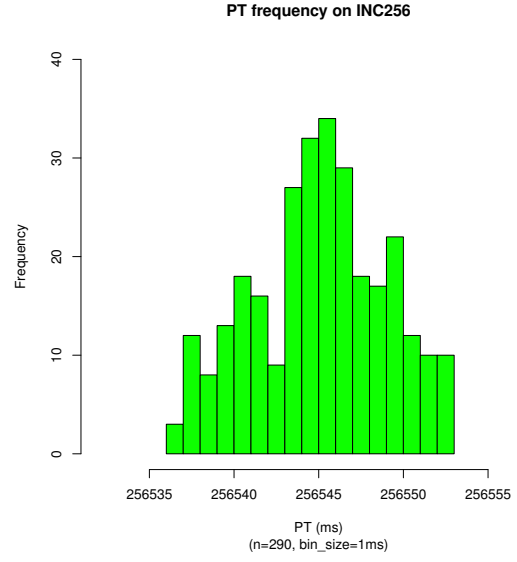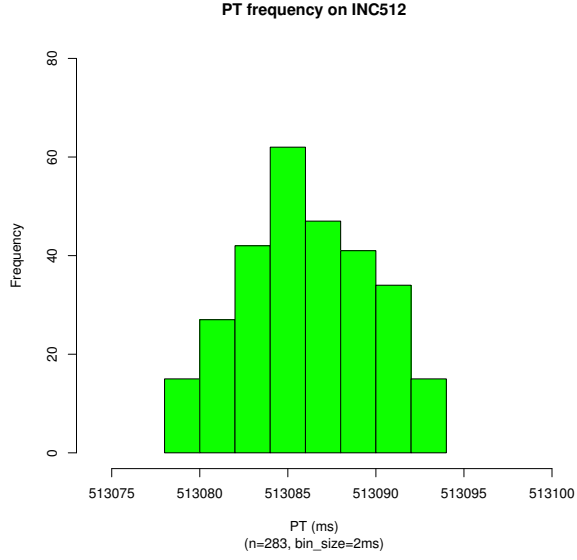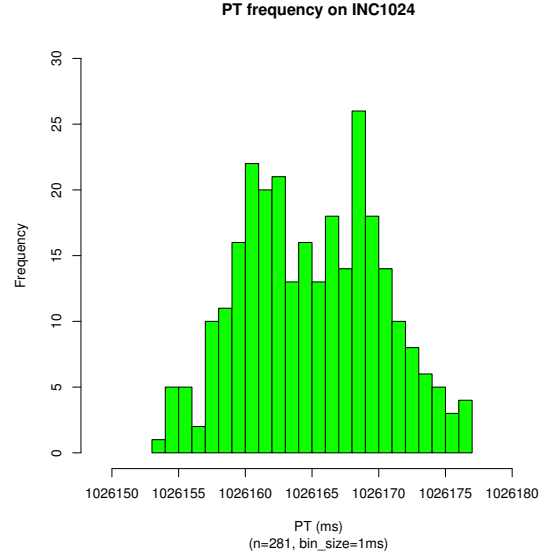Figure 4: ET Histograms of INC2048 and INC4096

3.2 PT

PT frequency on INC1

(a) PT frequency on INC1

PT frequency on INC2

(b) PT frequency on INC2

PT frequency on INC4

(c) PT frequency on INC4

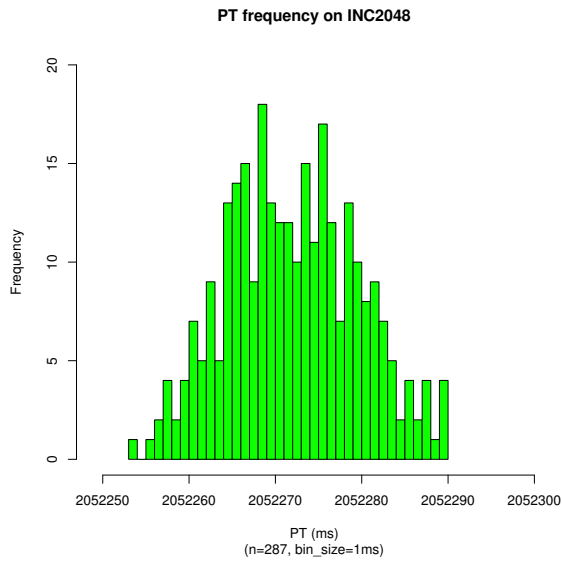**PT frequency on INC8**

(d) PT frequency on INC8

Figure 5: PT Histograms of INC1 ... INC8

(a) PT frequency on INC16
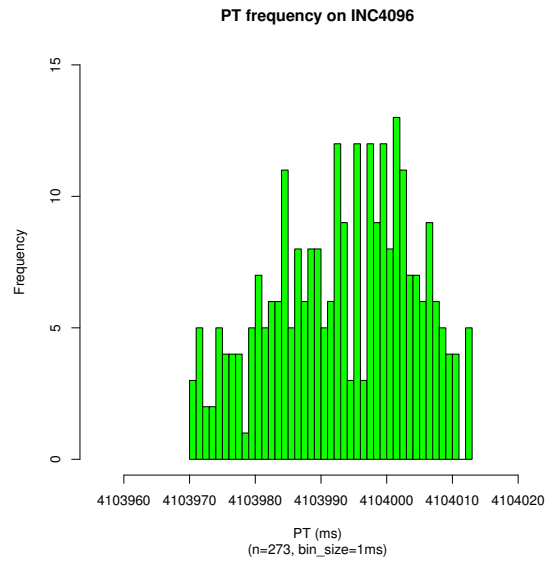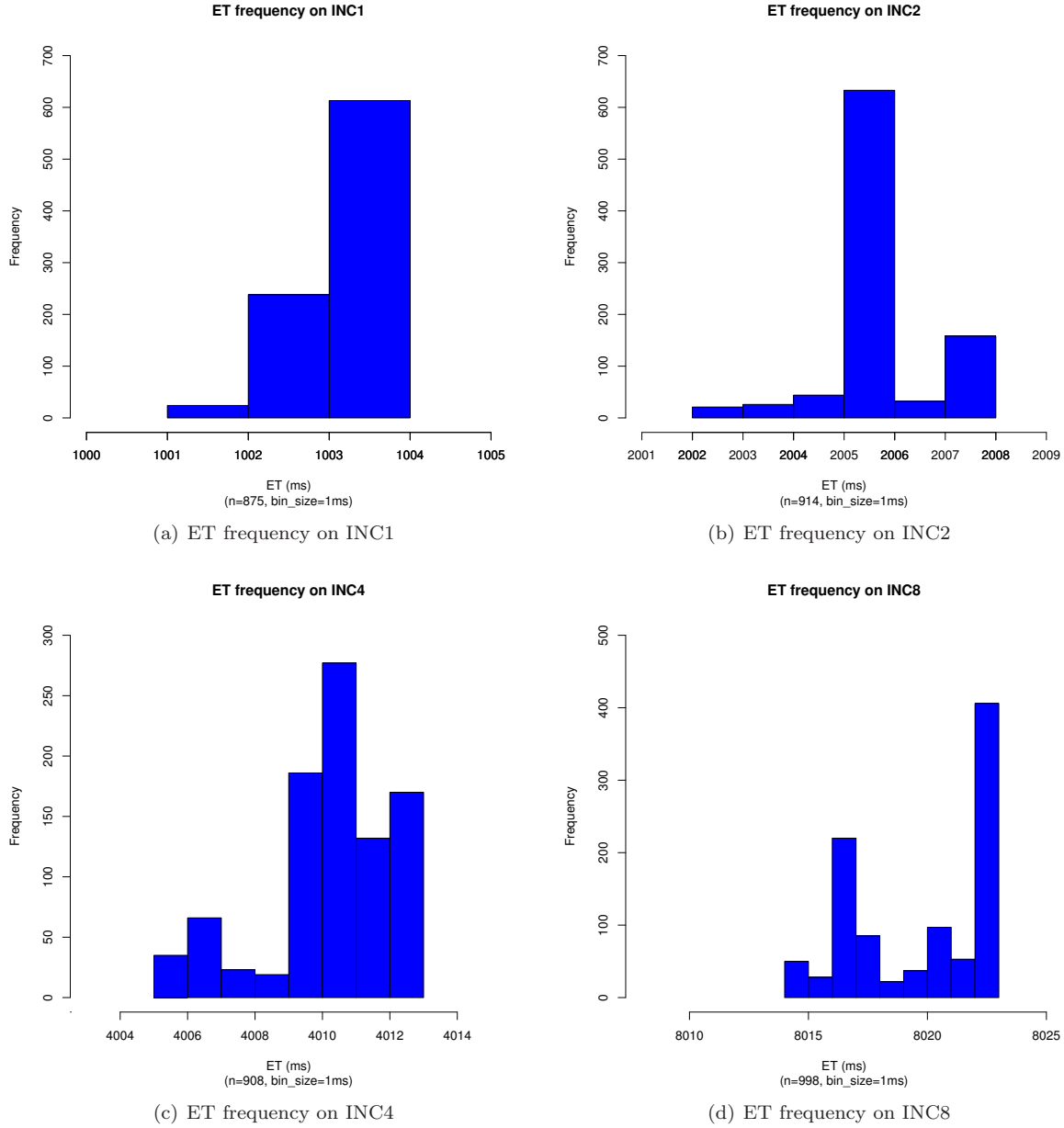

(b) PT frequency on INC32

(c) PT frequency on INC64

Figure 6: PT Histograms of INC16 ... INC64

PT frequency on INC128

PT frequency on INC256

Frequency

PT (ms)
(n=290, bin_size=1ms)

(a) PT frequency on INC128

Frequency

PT (ms)
(n=290, bin_size=1ms)

(b) PT frequency on INC256

PT frequency on INC512

PT frequency on INC1024

Frequency

PT (ms)
(n=283, bin_size=2ms)

(c) PT frequency on INC512

Frequency

PT (ms)
(n=281, bin_size=1ms)

(d) PT frequency on INC1024

Figure 7: PT Histograms of INC256 ... INC1024

(a) PT frequency on INC2048

(b) PT frequency on INC4096

Figure 8: PT Histograms of INC2048 and INC4096

4 Histograms on the Second Run

This section exhibits histograms on the second run of INC with its task length increasing from 1 second to 4096 seconds, via EMPv5. The detailed description of the base data is from Table 1.
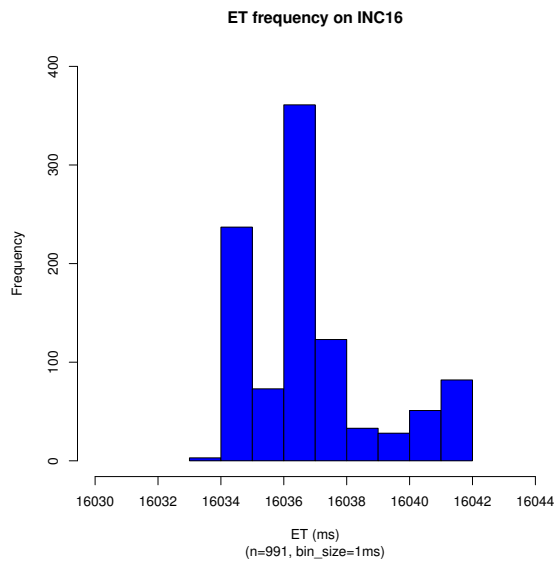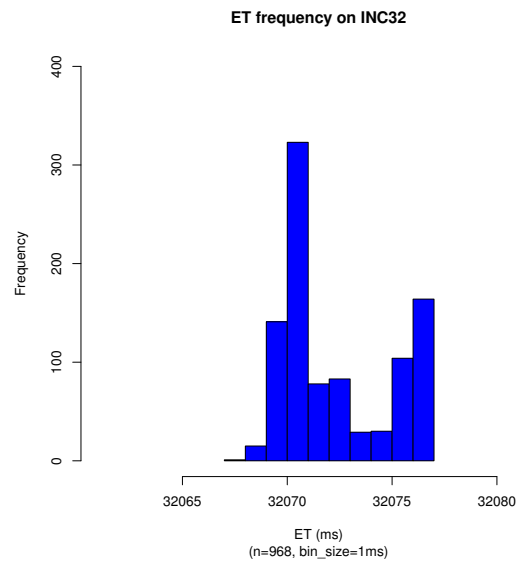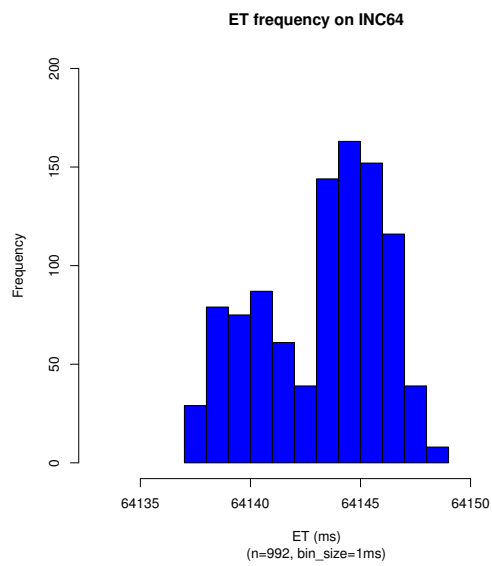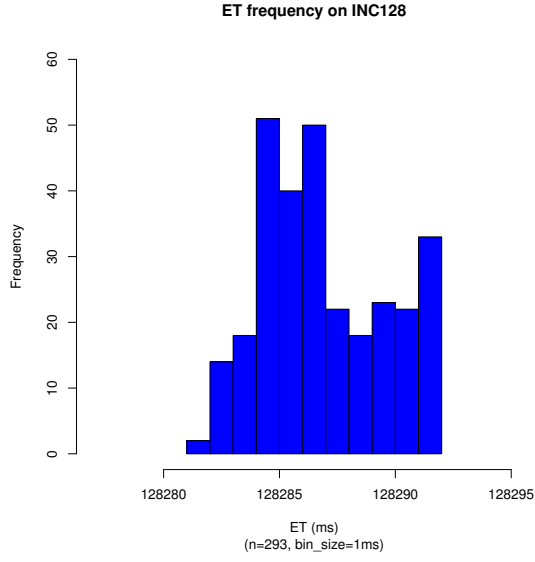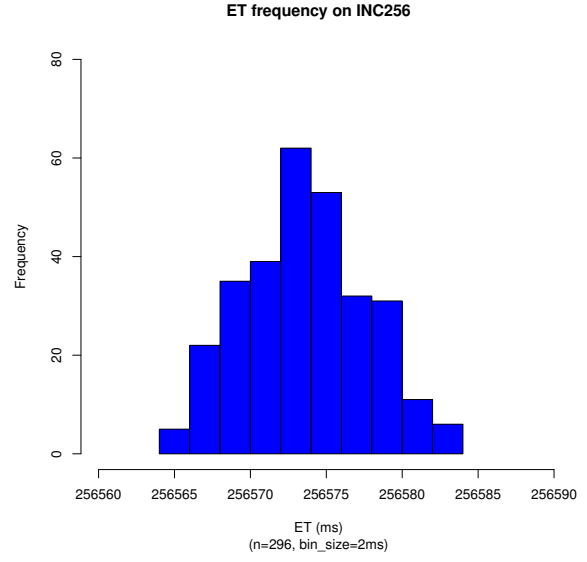
4.1 ET

(a) ET frequency on INC1

(b) ET frequency on INC2
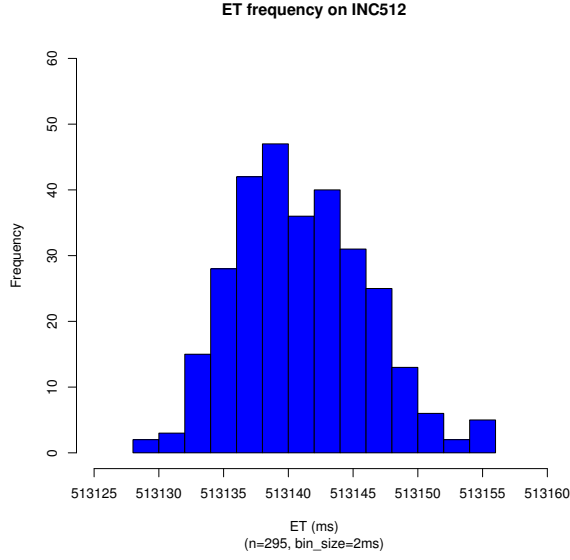
(c) ET frequency on INC4

(d) ET frequency on INC8

Figure 9: ET Histograms of INC1 ... INC8

(a) ET frequency on INC16

(b) ET frequency on INC32

(c) ET frequency on INC64

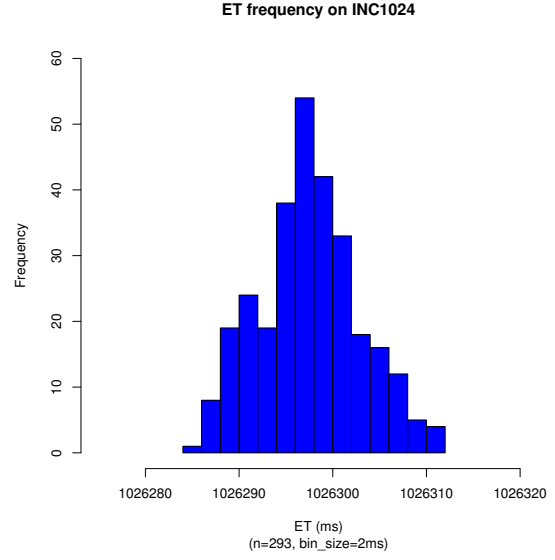Figure 10: ET Histograms of INC16 ... INC64

(a) ET frequency on INC128
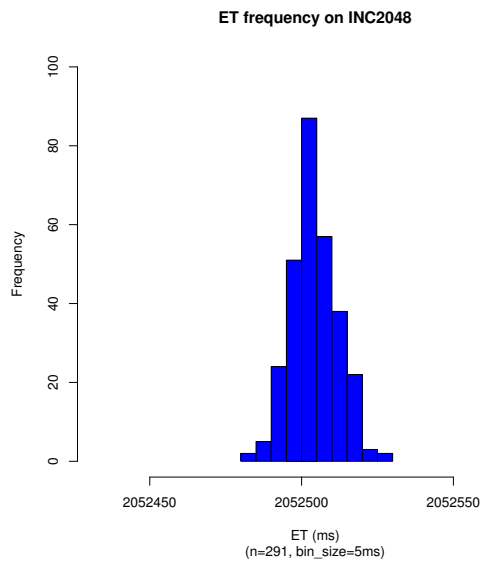
(b) ET frequency on INC256
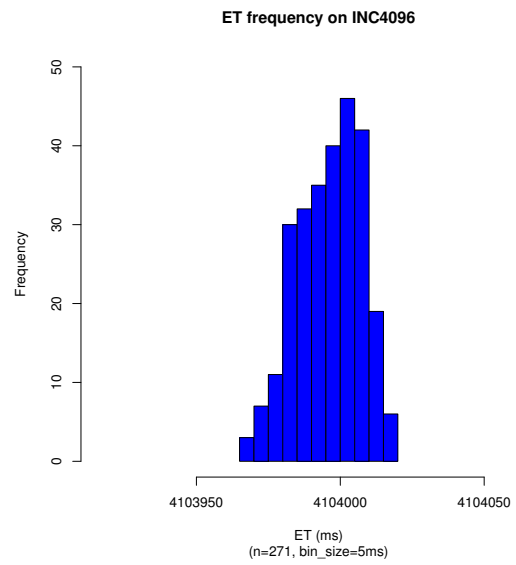
(c) ET frequency on INC512

(d) ET frequency on INC1024

Figure 11: ET Histograms of INC128 ... INC1024

(a) ET frequency on INC2048

(b) ET frequency on INC4096

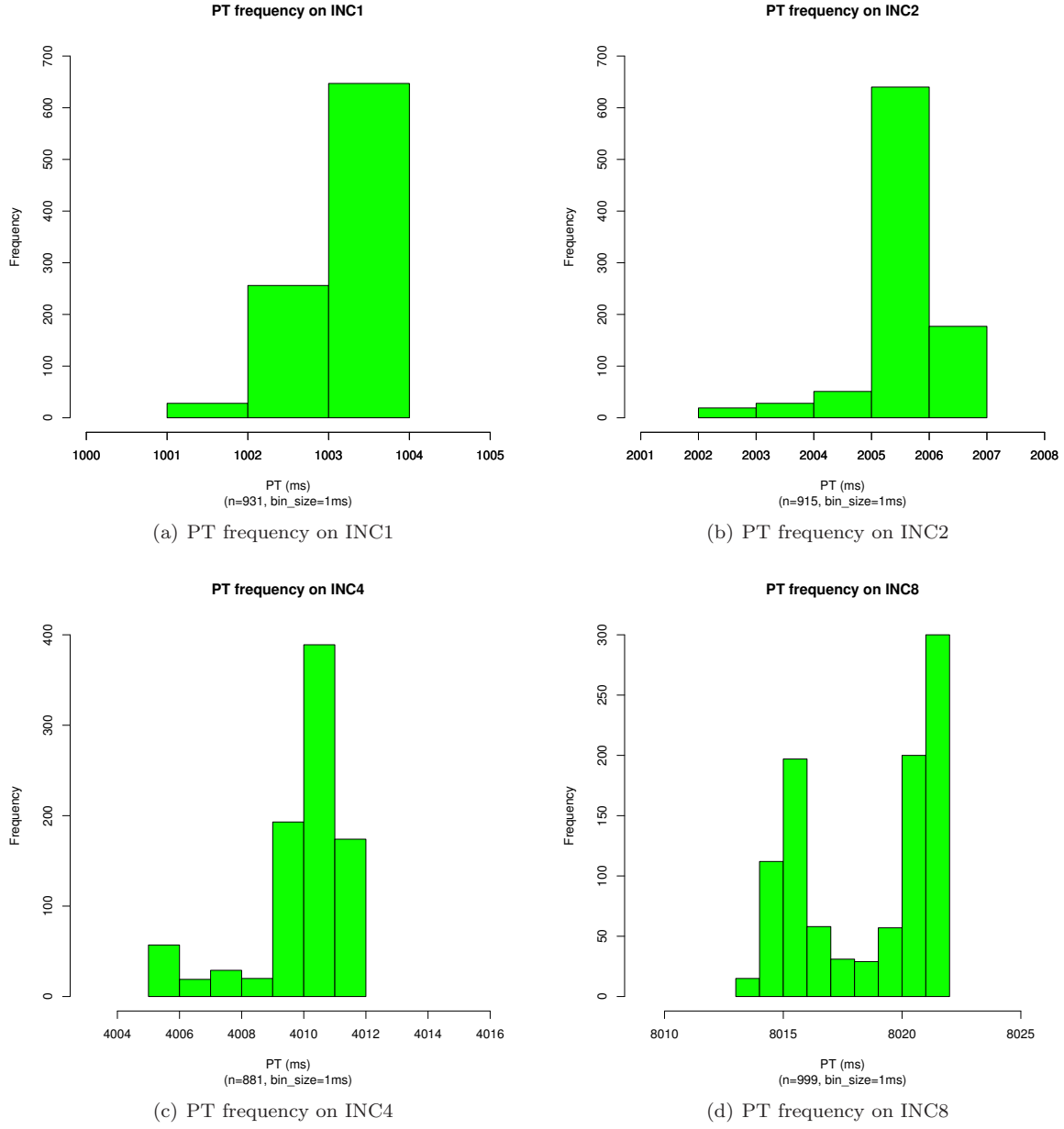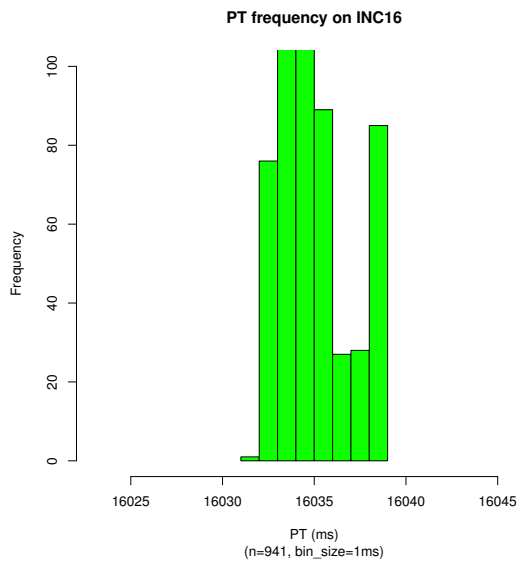Figure 12: ET Histograms of INC2048 and INC4096

4.2   PT

(a) PT frequency on INC1

(b) PT frequency on INC2

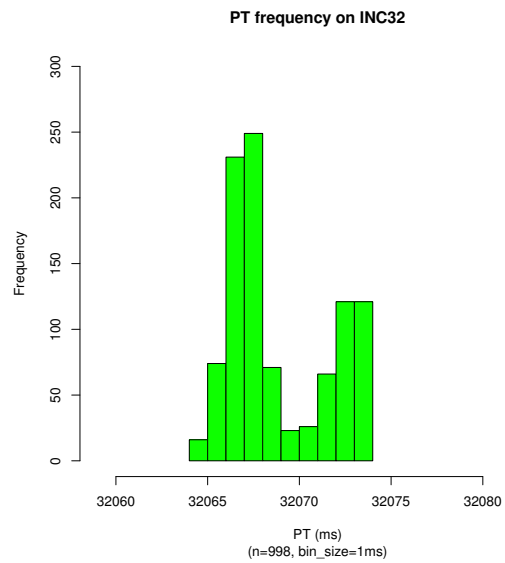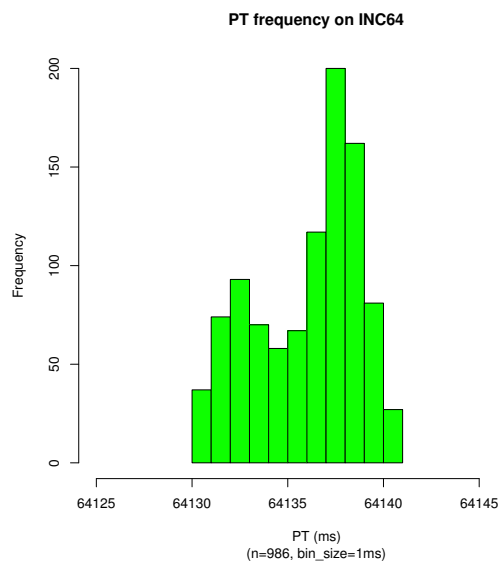(c) PT frequency on INC4

(d) PT frequency on INC8

Figure 13: PT Histograms of INC1 ... INC8
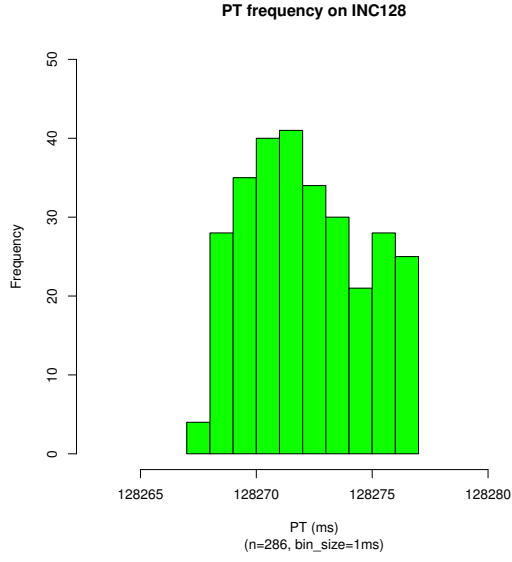
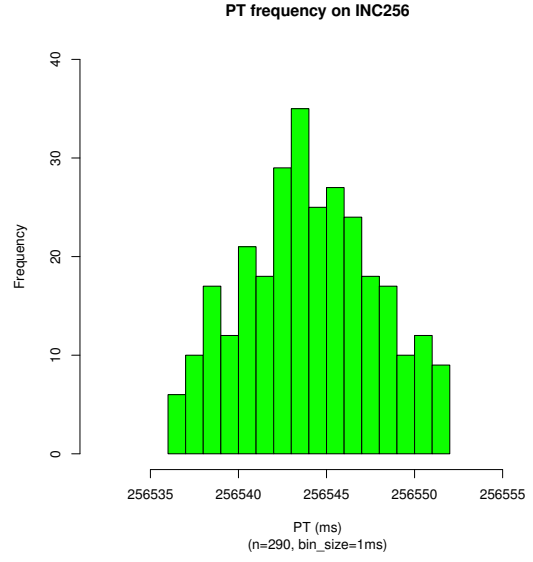(a) PT frequency on INC16

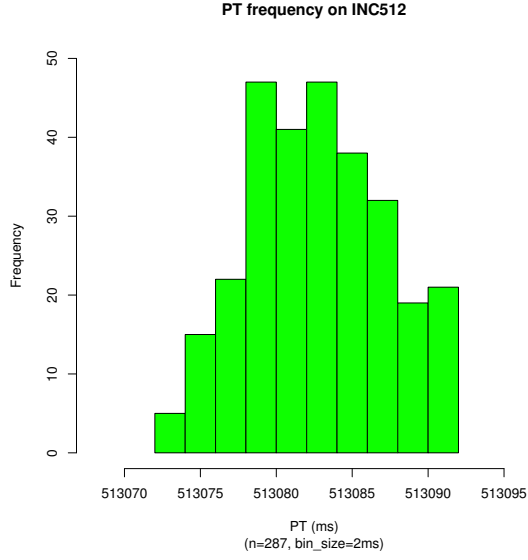(b) PT frequency on INC32

(c) PT frequency on INC64
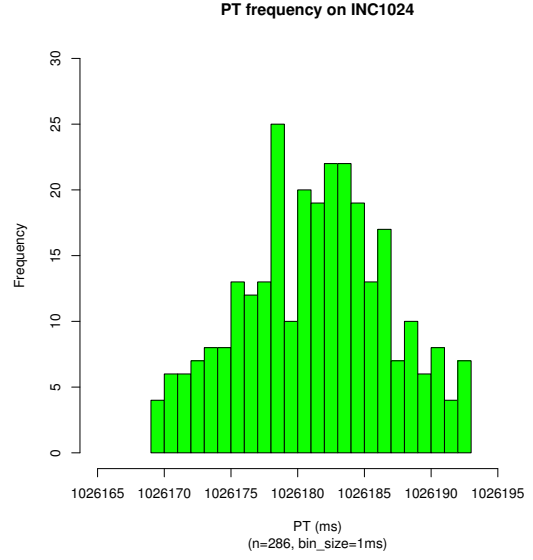
Figure 14: PT Histograms of INC16 ... INC64

(a) PT frequency on INC128
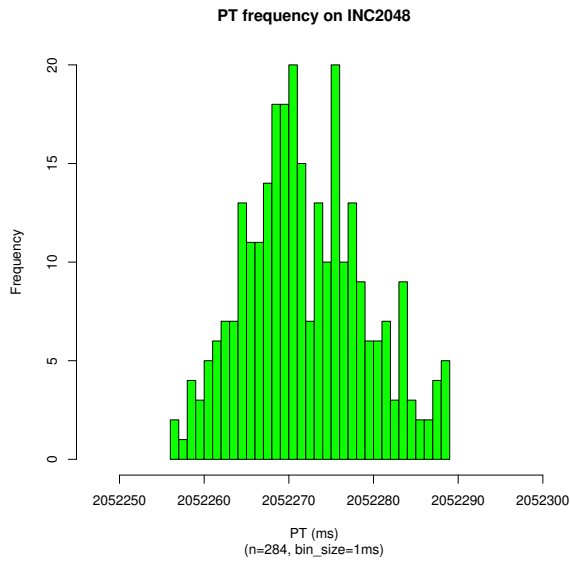

(b) PT frequency on INC256
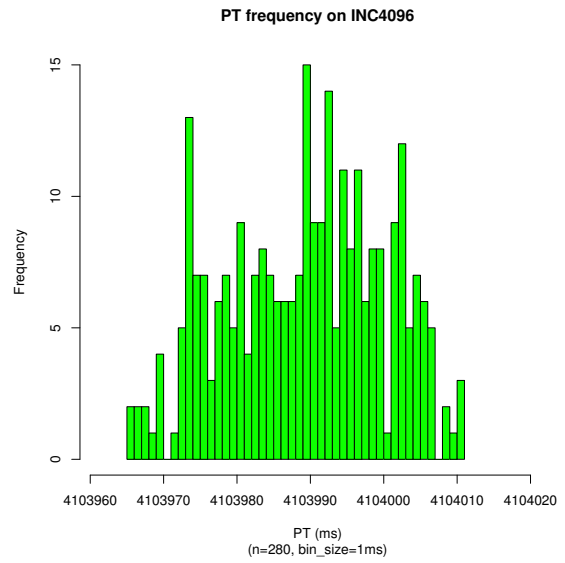

(c) PT frequency on INC512

(d) PT frequency on INC1024

Figure 15: PT Histograms of INC256 ... INC1024

(a) PT frequency on INC2048

(b) PT frequency on INC4096

Figure 16: PT Histograms of INC2048 and INC4096