A Comprehensive Study of Characterizing Program Execution Time

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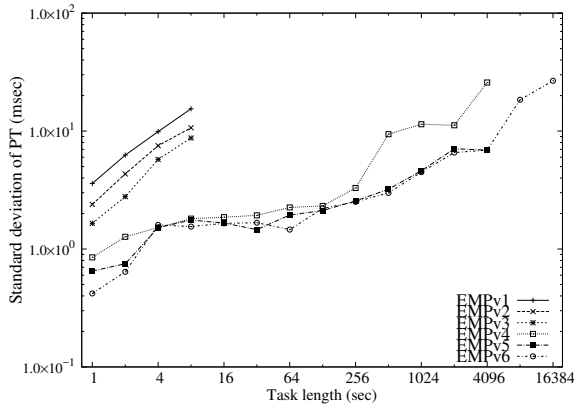
January 12, 2017

1   Experiment Notes
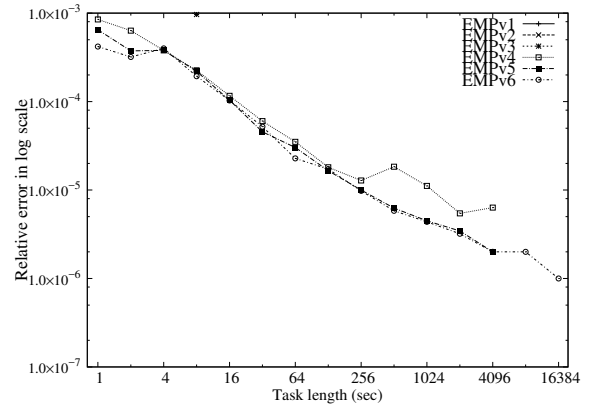
Task Length	Description	Time Length
INC1∼INC64	Runs of 1000 samples (on `sodb12`).	2013-10-14 ∼ 2013-10-15
INC128∼INC2048	Runs of 300 samples (on `sodb12`).	2013-12-12 ∼ 2013-12-21
INC4096	A run of 300 samples (on `sodb12`).	2014-06-23 ∼ 2014-07-10
INC4096	A run of 40 samples (on `sodb12`).	2015-05-07 ∼ 2015-05-09
INC8192	Runs of 40 samples (on `sodb12`).	2015-04-23 ∼ 2015-04-27
INC16384	Runs of 40 samples (on `sodb12`).	2015-04-23 ∼ 2015-04-23

Table 1: Notes on the regular INC data used for the histograms

2   Measurement Quality

(a) Standard Deviations of PT

(b) Relative Errors of PT

Figure 1: Measurement Quality Comparison among the EMP versions: updated with INC4096's another run

3 Histograms on the EMPv4 Data

The base data of the following histograms are from Table 1.

3.1 ET

(a) ET frequency on INC1

(b) ET frequency on INC2
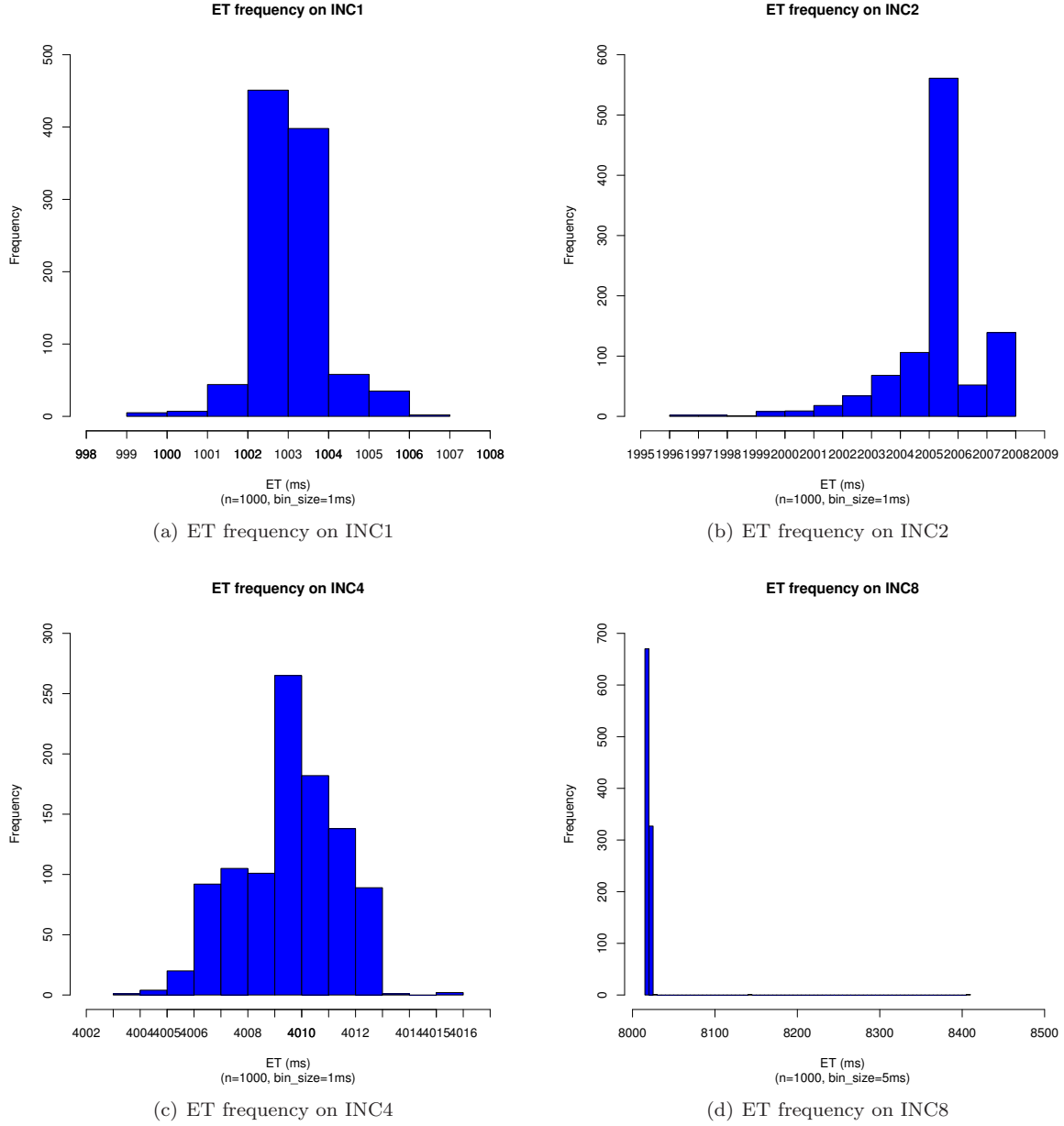
(c) ET frequency on INC4
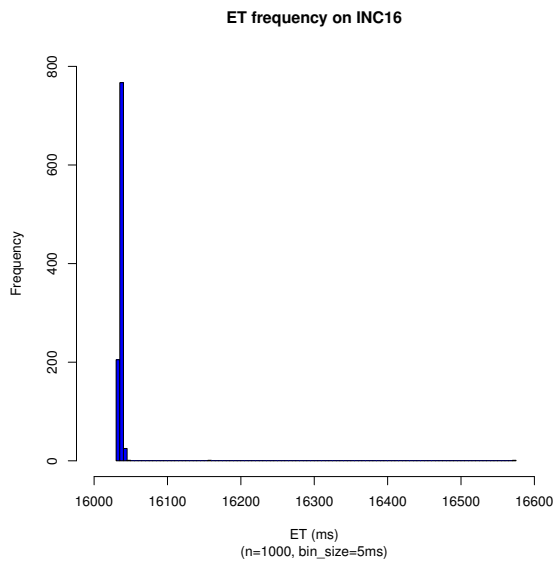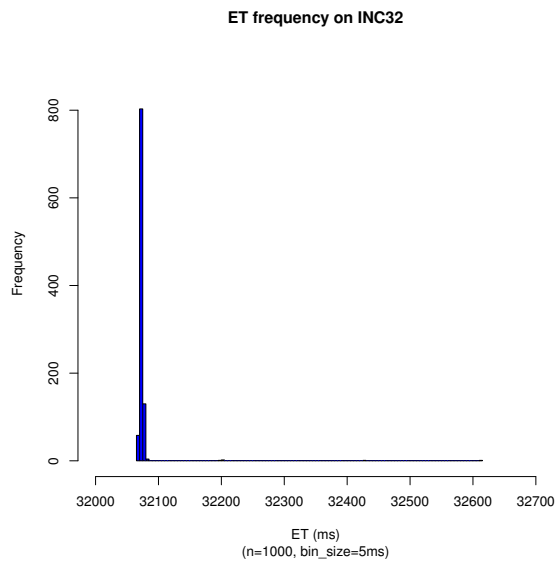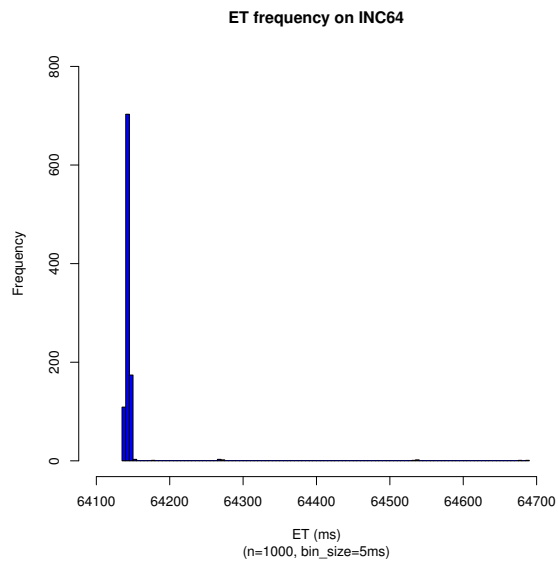
(d) ET frequency on INC8

Figure 2: ET Histograms of INC1 ... INC8
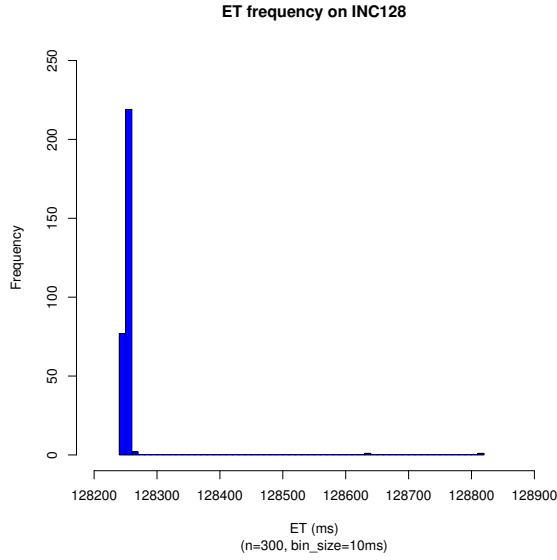
(a) ET frequency on INC16
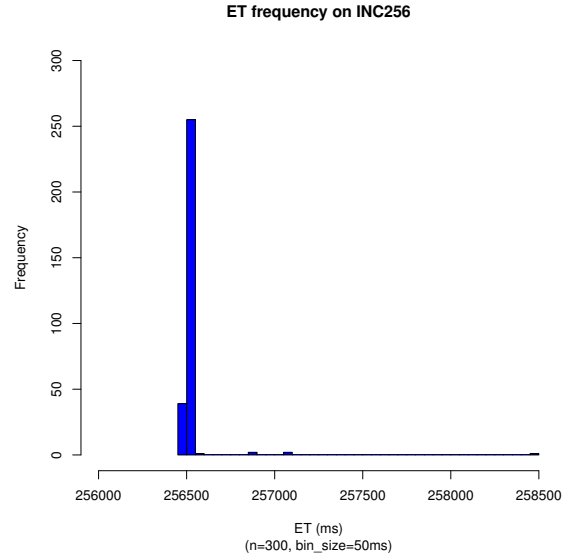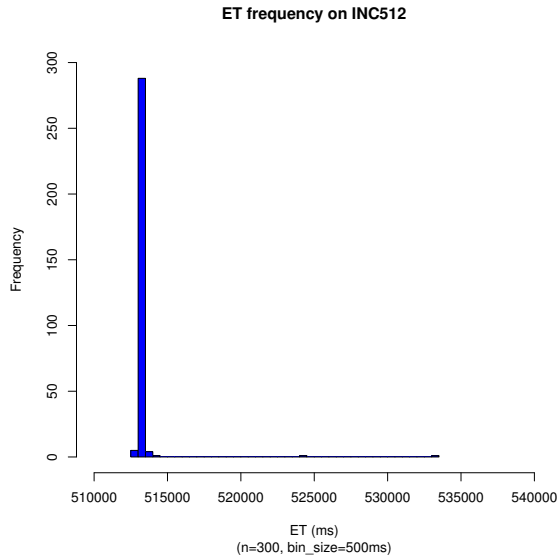

(b) ET frequency on INC32

(c) ET frequency on INC64

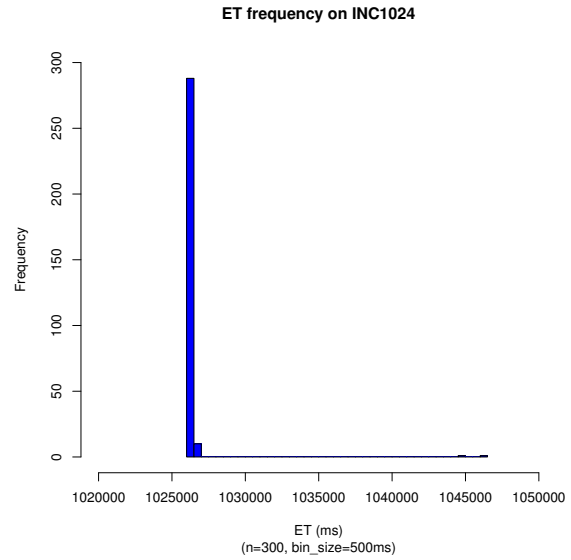Figure 3: ET Histograms of INC16 ... INC64

3

(a) ET frequency on INC128
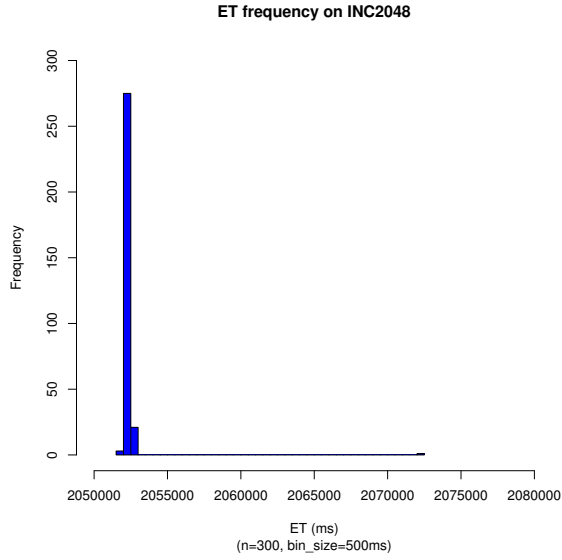

(b) ET frequency on INC256
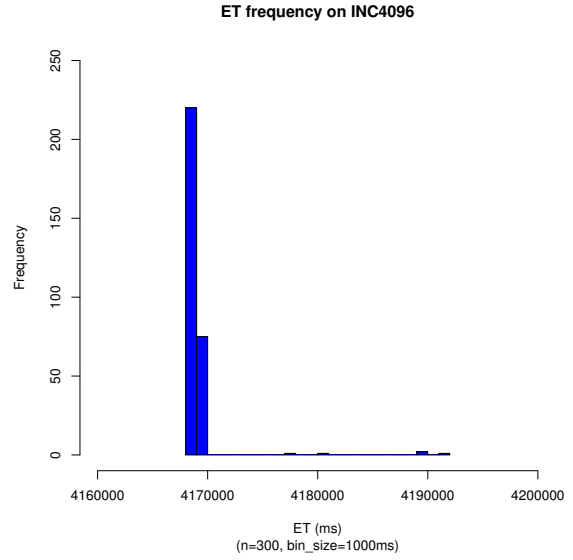

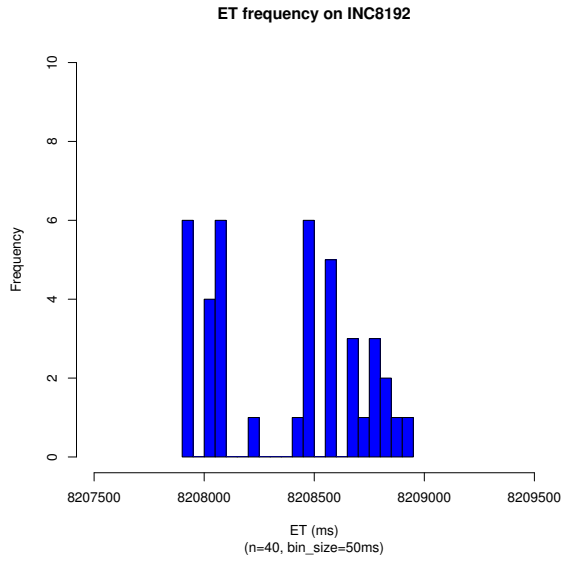(c) ET frequency on INC512

(d) ET frequency on INC1024

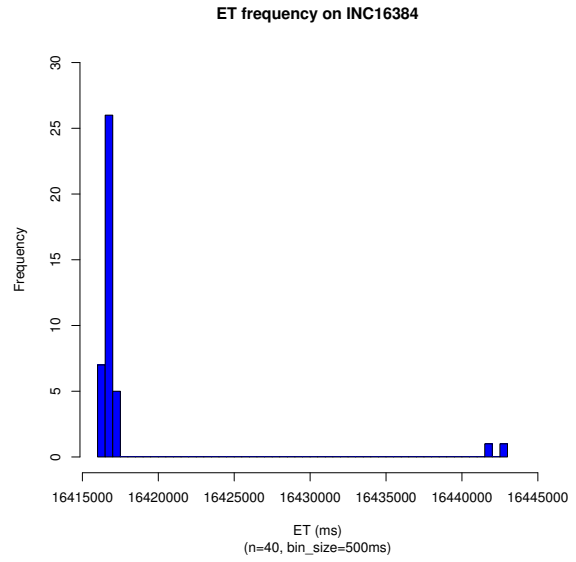Figure 4: ET Histograms of INC128 ... INC1024

(a) ET frequency on INC2048

(b) ET frequency on INC4096

(c) ET frequency on INC8192

(d) ET frequency on INC16384

Figure 5: ET Histograms of INC2048 ... INC16384

3.2 PT

(a) PT frequency on INC1

(b) PT frequency on INC2

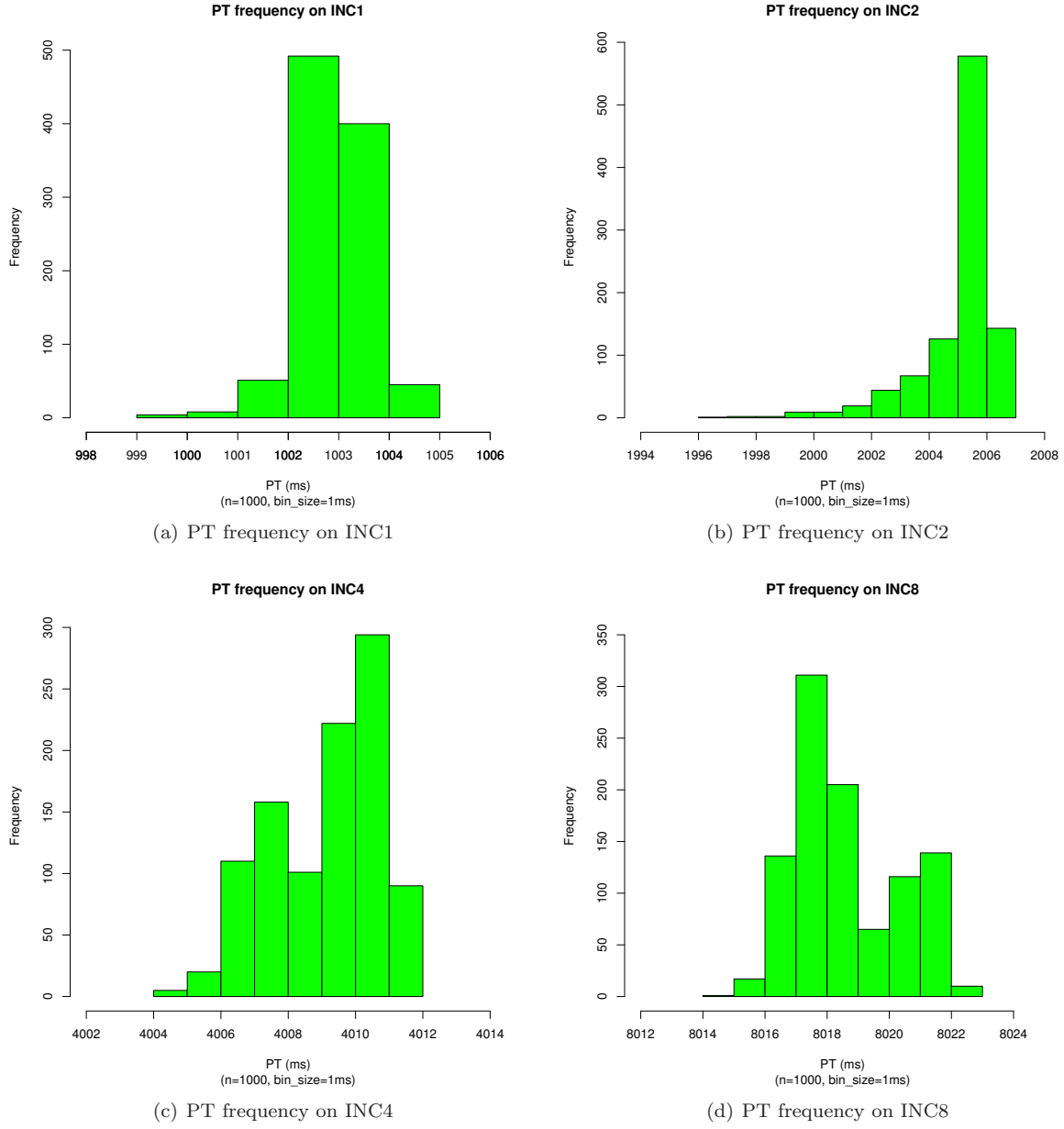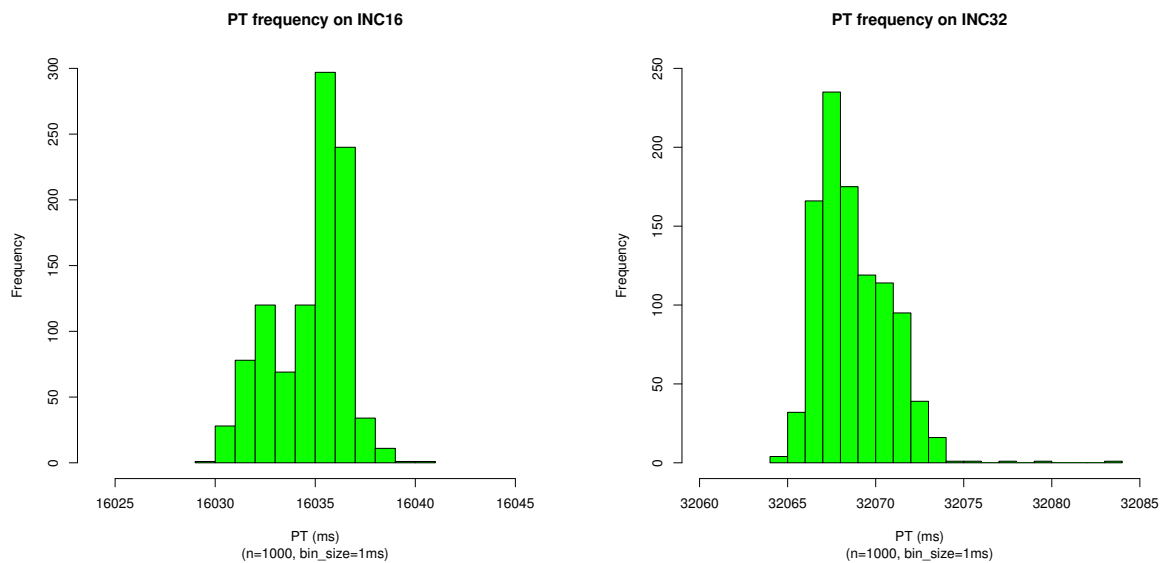(c) PT frequency on INC4

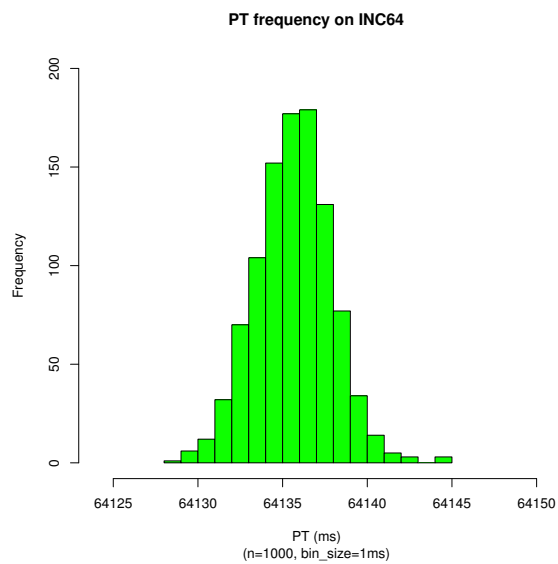

(d) PT frequency on INC8

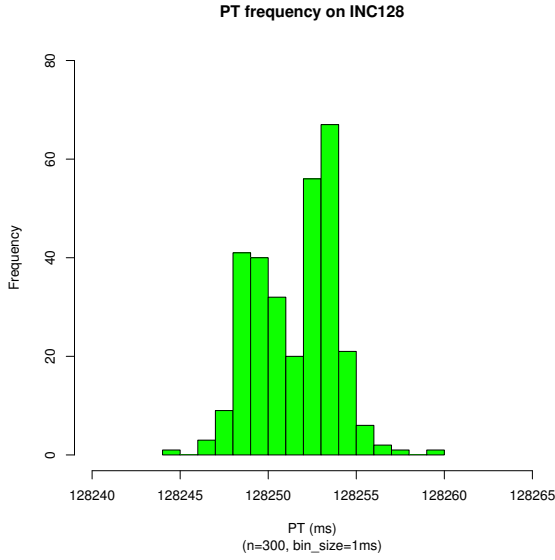Figure 6: PT Histograms of INC1 ... INC8

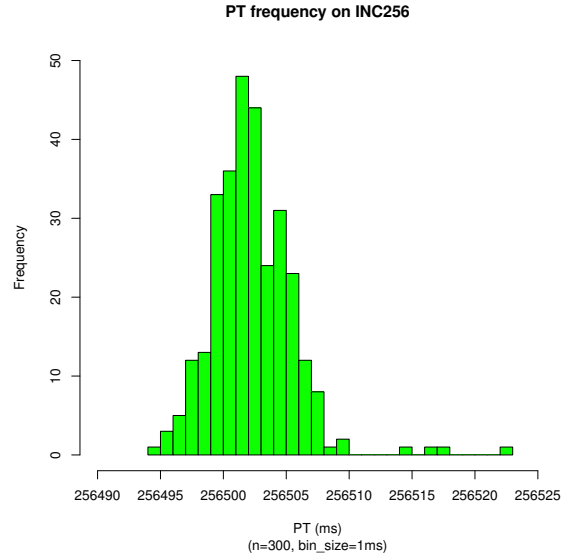(a) PT frequency on INC16

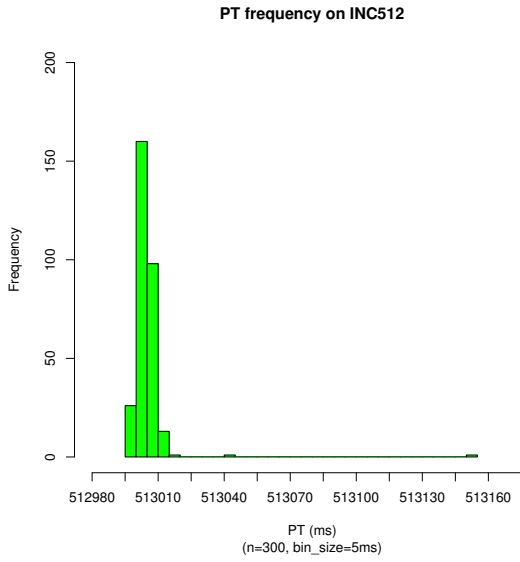(b) PT frequency on INC32

(c) PT frequency on INC64
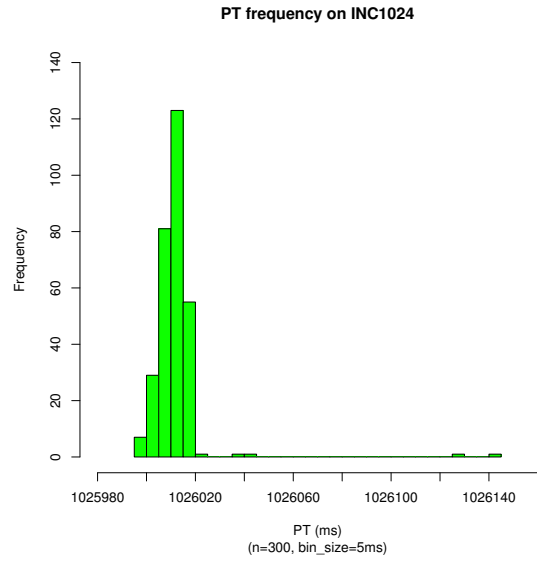
Figure 7: PT Histograms of INC16 ... INC64

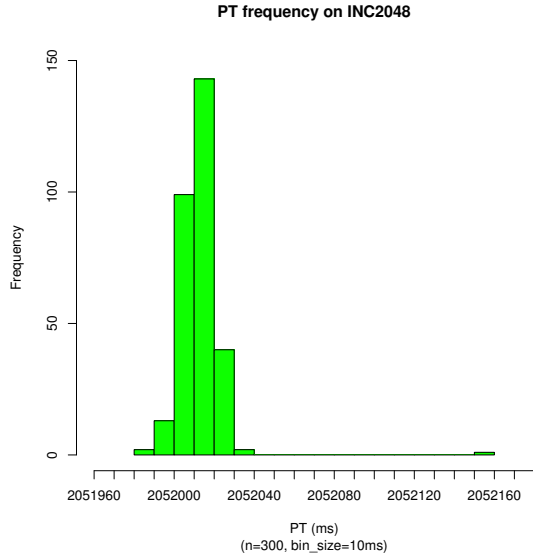(a) PT frequency on INC128

(b) PT frequency on INC256
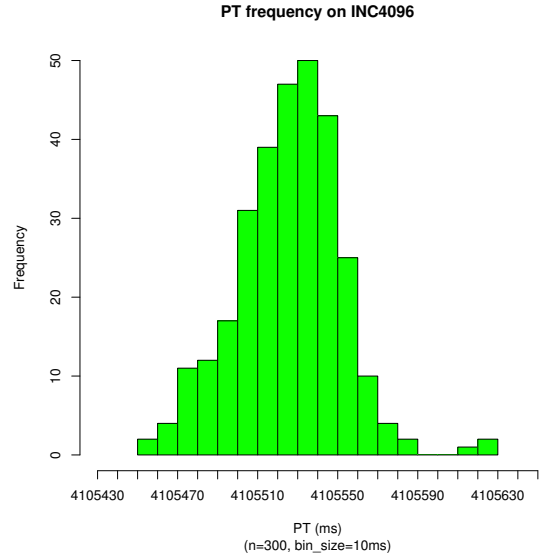
(c) PT frequency on INC512
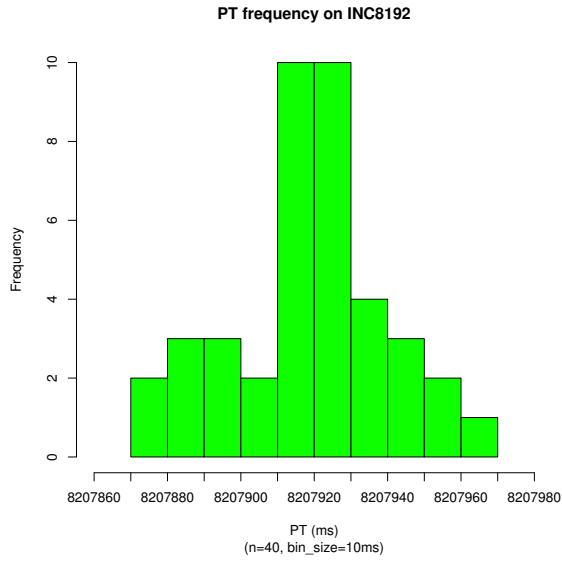
(d) PT frequency on INC1024

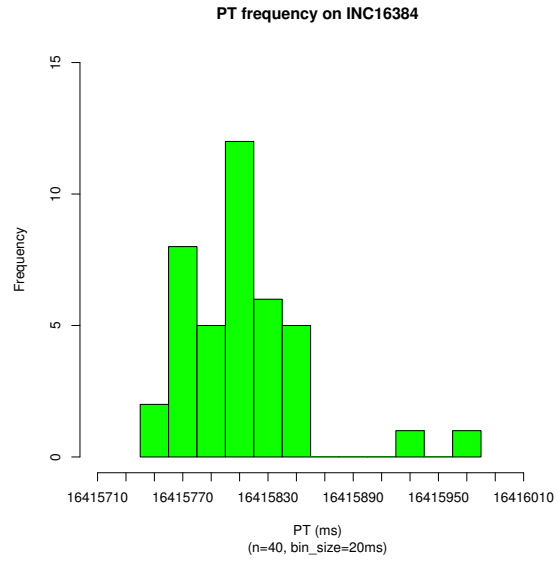Figure 8: PT Histograms of INC128 ... INC1024

(a) PT frequency on INC2048

(b) PT frequency on INC4096

(c) PT frequency on INC8192

(d) PT frequency on INC16384

Figure 9: PT Histograms of INC2048 ... INC16384