```
> restart
```

Load Libraries

```
> with(plots)
```

[*animate*, *animate3d*, *animatecurve*, *arrow*, *changecoords*, *complexplot*, *complexplot3d*, *conformal*, *conformal3d*, *contourplot*, *contourplot3d*, *coordplot*, *coordplot3d*, *densityplot*, *display*, *dualaxisplot*, *fieldplot*, *fieldplot3d*, *gradplot*, *gradplot3d*, *implicitplot*, *implicitplot3d*, *inequal*, *interactive*, *interactiveparams*, *intersectplot*, *listcontplot*, *listcontplot3d*, *listdensityplot*, *listplot*, *listplot3d*, *loglogplot*, *logplot*, *matrixplot*, *multiple*, *odeplot*, *pareto*, *plotcompare*, *pointplot*, *pointplot3d*, *polarplot*, *polygonplot*, *polygonplot3d*, *polyhedra_supported*, *polyhedraplot*, *rootlocus*, *semilogplot*, *setcolors*, *setoptions*, *setoptions3d*, *shadebetween*, *spacecurve*, *sparsematrixplot*, *surfdata*, *textplot*, *textplot3d*, *tubeplot*] **(1.1)**

```
> with(LinearAlgebra)
```

[*&x*, *Add*, *Adjoint*, *BackwardSubstitute*, *BandMatrix*, *Basis*, *BezoutMatrix*, *BidiagonalForm*, *BilinearForm*, *CARE*, *CharacteristicMatrix*, *CharacteristicPolynomial*, *Column*, *ColumnDimension*, *ColumnOperation*, *ColumnSpace*, *CompanionMatrix*, *CompressedSparseForm*, *ConditionNumber*, *ConstantMatrix*, *ConstantVector*, *Copy*, *CreatePermutation*, *CrossProduct*, *DARE*, *DeleteColumn*, *DeleteRow*, *Determinant*, *Diagonal*, *DiagonalMatrix*, *Dimension*, *Dimensions*, *DotProduct*, *EigenConditionNumbers*, *Eigenvalues*, *Eigenvectors*, *Equal*, *ForwardSubstitute*, *FrobeniusForm*, *FromCompressedSparseForm*, *FromSplitForm*, *GaussianElimination*, *GenerateEquations*, *GenerateMatrix*, *Generic*, *GetResultDataType*, *GetResultShape*, *GivensRotationMatrix*, *GramSchmidt*, *HankelMatrix*, *HermiteForm*, *HermitianTranspose*, *HessenbergForm*, *HilbertMatrix*, *HouseholderMatrix*, *IdentityMatrix*, *IntersectionBasis*, *IsDefinite*, *IsOrthogonal*, *IsSimilar*, *IsUnitary*, *JordanBlockMatrix*, *JordanForm*, *KroneckerProduct*, *LA_Main*, *LUDecomposition*, *LeastSquares*, *LinearSolve*, *LyapunovSolve*, *Map*, *Map2*, *MatrixAdd*, *MatrixExponential*, *MatrixFunction*, *MatrixInverse*, *MatrixMatrixMultiply*, *MatrixNorm*, *MatrixPower*, *MatrixScalarMultiply*, *MatrixVectorMultiply*, *MinimalPolynomial*, *Minor*, *Modular*, *Multiply*, *NoUserValue*, *Norm*, *Normalize*, *NullSpace*, *OuterProductMatrix*, *Permanent*, *Pivot*, *PopovForm*, *ProjectionMatrix*, *QRDecomposition*, *RandomMatrix*, *RandomVector*, *Rank*, *RationalCanonicalForm*, *ReducedRowEchelonForm*, *Row*, *RowDimension*, *RowOperation*, *RowSpace*, *ScalarMatrix*, *ScalarMultiply*, *ScalarVector*, *SchurForm*, *SingularValues*, *SmithForm*, *SplitForm*, *StronglyConnectedBlocks*, *SubMatrix*, *SubVector*, *SumBasis*, *SylvesterMatrix*, *SylvesterSolve*, *ToeplitzMatrix*, *Trace*, *Transpose*, *TridiagonalForm*, *UnitVector*, *VandermondeMatrix*, *VectorAdd*, *VectorAngle*, *VectorMatrixMultiply*, *VectorNorm*, *VectorScalarMultiply*, *ZeroMatrix*, *ZeroVector*, *Zip*] **(1.2)**

```
> with(Statistics)
```

[*AbsoluteDeviation*, *AgglomeratedPlot*, *AreaChart*, *AutoCorrelation*, *AutoCorrelationPlot*, *BarChart*, *Biplot*, *Bootstrap*, *BoxPlot*, *BubblePlot*, *CDF*, *CGF*, *CentralMoment*, **(1.3)**

CharacteristicFunction, *ChiSquareGoodnessOfFitTest*, *ChiSquareIndependenceTest*, *ChiSquareSuitableModelTest*, *ColumnGraph*, *Correlation*, *CorrelationMatrix*, *Correlogram*, *Count*, *CountMissing*, *Covariance*, *CovarianceMatrix*, *CrossCorrelation*, *Cumulant*, *CumulantGeneratingFunction*, *CumulativeDistributionFunction*, *CumulativeProduct*, *CumulativeSum*, *CumulativeSumChart*, *DataSummary*, *Decile*, *DensityPlot*, *Detrend*, *Difference*, *DiscreteValueMap*, *Distribution*, *ErrorPlot*, *EvaluateToFloat*, *Excise*, *ExpectedValue*, *ExponentialFit*, *ExponentialSmoothing*, *FailureRate*, *FisherInformation*, *Fit*, *FivePointSummary*, *FrequencyPlot*, *FrequencyTable*, *GeometricMean*, *GridPlot*, *HarmonicMean*, *HazardRate*, *HeatMap*, *Histogram*, *HodgesLehmann*, *Information*, *InteractiveDataAnalysis*, *InterquartileRange*, *InverseSurvivalFunction*, *Join*, *KernelDensity*, *KernelDensityPlot*, *KernelDensitySample*, *Kurtosis*, *LeastTrimmedSquares*, *Likelihood*, *LikelihoodRatioStatistic*, *LineChart*, *LinearFilter*, *LinearFit*, *LogLikelihood*, *LogarithmicFit*, *Lowess*, *MGF*, *MLE*, *MakeProcedure*, *MaximumLikelihoodEstimate*, *Mean*, *MeanDeviation*, *Median*, *MedianDeviation*, *MillsRatio*, *Mode*, *Moment*, *MomentGeneratingFunction*, *MovingAverage*, *MovingMedian*, *MovingStatistic*, *NonlinearFit*, *NormalPlot*, *OneSampleChiSquareTest*, *OneSampleTTest*, *OneSampleZTest*, *OneWayANOVA*, *OrderByRank*, *OrderStatistic*, *PCA*, *PDF*, *ParetoChart*, *Percentile*, *PieChart*, *PointPlot*, *PolynomialFit*, *PowerFit*, *PredictiveLeastSquares*, *PrincipalComponentAnalysis*, *Probability*, *ProbabilityDensityFunction*, *ProbabilityFunction*, *ProbabilityPlot*, *ProfileLikelihood*, *ProfileLogLikelihood*, *QuadraticMean*, *Quantile*, *QuantilePlot*, *Quartile*, *RandomVariable*, *Range*, *Rank*, *Remove*, *RemoveInRange*, *RemoveNonNumeric*, *RepeatedMedianEstimator*, *RousseeuwCrouxQn*, *RousseeuwCrouxSn*, *Sample*, *Scale*, *ScatterPlot*, *ScatterPlot3D*, *Score*, *ScreePlot*, *Select*, *SelectInRange*, *SelectNonNumeric*, *ShapiroWilkWTest*, *Shuffle*, *Skewness*, *Sort*, *Specialize*, *SplitByColumn*, *StandardDeviation*, *StandardError*, *StandardizedMoment*, *SunflowerPlot*, *Support*, *SurfacePlot*, *SurvivalFunction*, *SymmetryPlot*, *Tally*, *TallyInto*, *TreeMap*, *Trim*, *TrimmedMean*, *TwoSampleFTest*, *TwoSamplePairedTTest*, *TwoSampleTTest*, *TwoSampleZTest*, *Variance*, *Variation*, *VennDiagram*, *ViolinPlot*, *WeibullPlot*, *WeightedMovingAverage*, *Winsorize*, *WinsorizedMean*]

```
> Type = "i5−2500 K CPU @ 3.30 GHz"
> FileL := FileTools[ListDirectory](".", 'all', 'returnonly' = "·.txt")
```

$$FileL := [\text{"Speed.txt"}] \quad \textbf{(1)}$$

```
>
```

$$Type = \text{"i5-2500 K CPU @ 3.30 GHz"} \quad \textbf{(2)}$$

```
> FamSpeed := ImportMatrix(FileL[1], source = csv)
```

$$FamSpeed := \begin{bmatrix} 100. & 1.30000000000000\ 10^{-6} & 2.66366000000000\ 10^{-8} \\ 133. & 1.50000000000000\ 10^{-6} & 1.50143000000000\ 10^{-7} \\ 177. & 9.00000000000000\ 10^{-7} & -3.37294000000000\ 10^{-7} \\ 236. & 3.00000000000000\ 10^{-6} & 2.98573000000000\ 10^{-7} \\ 315. & 1.40000000000000\ 10^{-6} & 2.29747000000000\ 10^{-7} \\ 420. & 5.20000000000000\ 10^{-6} & 1.55147000000000\ 10^{-7} \\ 560. & 1.90000000000000\ 10^{-6} & -1.94351000000000\ 10^{-8} \\ 747. & 9.00000000000000\ 10^{-6} & -3.93865000000000\ 10^{-7} \\ 996. & 3.20000000000000\ 10^{-6} & -8.63760000000000\ 10^{-9} \\ 1328. & 4.10000000000000\ 10^{-6} & -2.43901000000000\ 10^{-7} \\ \vdots & \vdots & \vdots \end{bmatrix} \quad \textbf{(3)}$$

54 × 3 Matrix

> $N := Transpose(FamSpeed)[1];$

$$N := [100., 133., 177., 236., 315., 420., 560., 747., 996., 1328., 1771., 2362., 3150., 4201., 5602., 7470., 9961., 13283., 17713., 23621., 31499., 42005., 56015., 74697., 99610., 132832., 177134., 236212., 314994., 420051., 560147., 746968., 996098., 1.328318\ 10^{6}, 1.771341\ 10^{6}, 2.362121\ 10^{6}, 3.149939\ 10^{6}, 4.200511\ 10^{6}, 5.601471\ 10^{6}, 7.469682\ 10^{6}, 9.960981\ 10^{6}, 1.3283182\ 10^{7}, 1.7713408\ 10^{7}, 2.3621209\ 10^{7}, 3.1499388\ 10^{7}, 4.2005109\ 10^{7}, 5.6014713\ 10^{7}, 7.4696820\ 10^{7}, 9.9609810\ 10^{7}, 1.32831816\ 10^{8}, 1.77134074\ 10^{8}, 2.36212084\ 10^{8}, 3.14993877\ 10^{8}, 4.20051086\ 10^{8}] \quad \textbf{(4)}$$

> $DeltaT := Transpose(FamSpeed)[2];$

$$DeltaT := [1.30000000000000\ 10^{-6}, 1.50000000000000\ 10^{-6}, 9.00000000000000\ 10^{-7}, 3.00000000000000\ 10^{-6}, 1.40000000000000\ 10^{-6}, 5.20000000000000\ 10^{-6}, 1.90000000000000\ 10^{-6}, 9.00000000000000\ 10^{-6}, 3.20000000000000\ 10^{-6}, 4.10000000000000\ 10^{-6}, 0.0000206000000000000, 0.0000266000000000000, 9.10000000000000\ 10^{-6}, 0.0000121000000000000, 0.0000631000000000000, 0.0000210000000000000, 0.0000279000000000000, 0.0000372000000000000, 0.0000572000000000000, 0.0000664000000000000, 0.0003489000000000000, 0.0001168000000000000, 0.0006438000000000000, 0.0002015000000000000, 0.0002797000000000000, 0.0015278000000000000, 0.0004977000000000000, 0.0018501000000000000, 0.0026076000000000000, 0.0011583000000000000, 0.0022862000000000000, 0.0043660000000000000, 0.0028778000000000000, 0.0102924000000000000, 0.0091957000000000000, 0.0092645000000000000, 0.0119864000000000000, 0.0260595000000000000, 0.0171510000000000000, 0.0302298000000000000, 0.0270736000000000000, 0.0605652000000000000, 0.0659323000000000000, 0.0659654000000000000, 0.0965747000000000000, \quad \textbf{(5)}$$

0.132370000000000, 0.185577000000000, 0.224490000000000, 0.317585000000000, 0.473895000000000, 0.604814000000000, 0.694554000000000, 0.937484000000000, 1.23193000000000]

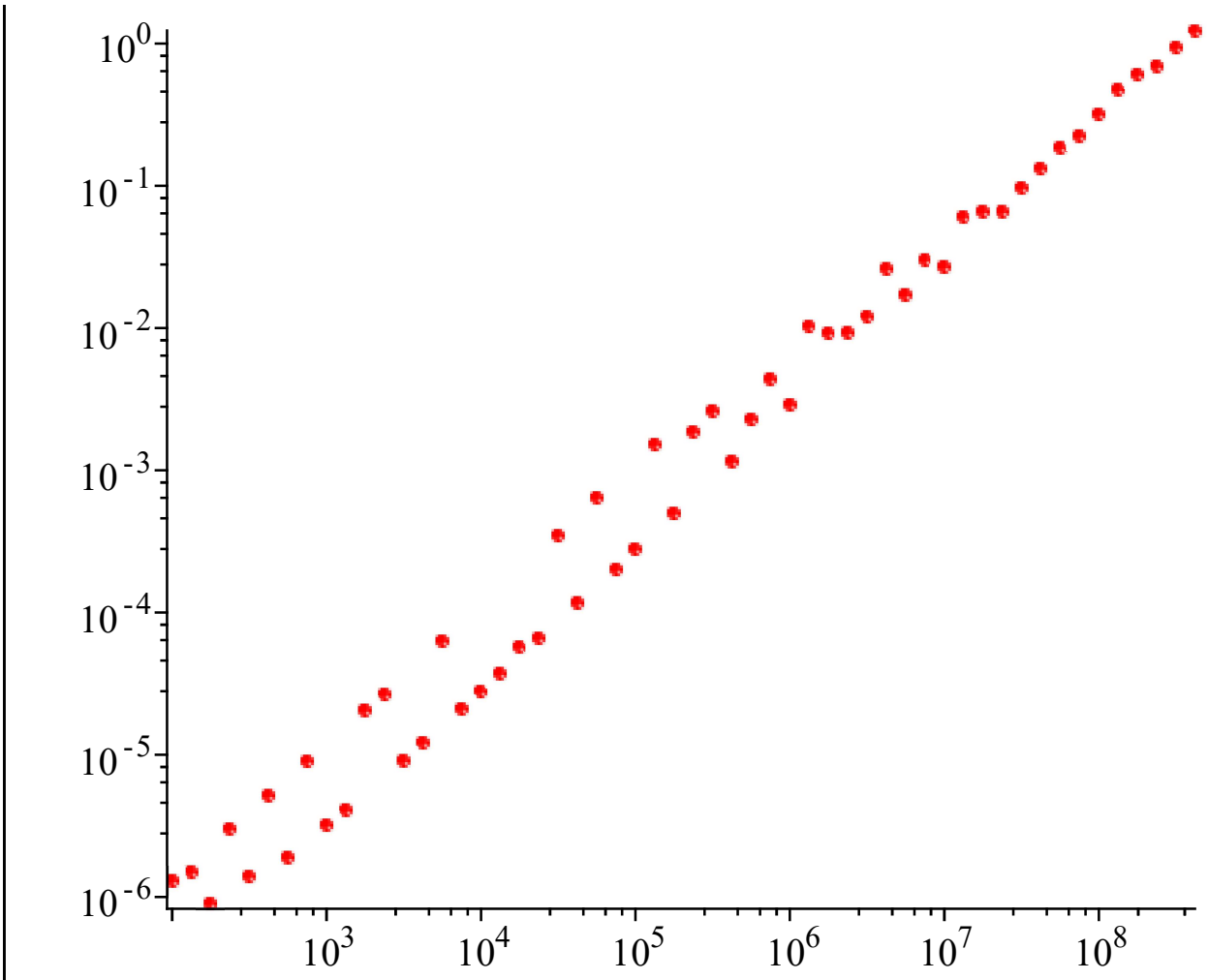
> $Err := Transpose(FamSpeed)[3];$

$$Err := [2.66366000000000\ 10^{-8}, 1.50143000000000\ 10^{-7}, -3.37294000000000\ 10^{-7}, 2.98573000000000\ 10^{-7}, 2.29747000000000\ 10^{-7}, 1.55147000000000\ 10^{-7}, -1.94351000000000\ 10^{-8}, -3.93865000000000\ 10^{-7}, -8.63760000000000\ 10^{-9}, -2.43901000000000\ 10^{-7}, 6.02531000000000\ 10^{-7}, -1.49169000000000\ 10^{-6}, -8.96918000000000\ 10^{-7}, 1.46654000000000\ 10^{-7}, 9.37750000000000\ 10^{-7}, 2.23334000000000\ 10^{-6}, -2.43484000000000\ 10^{-6}, -2.53902000000000\ 10^{-6}, -2.25544000000000\ 10^{-6}, 1.36195000000000\ 10^{-6}, -9.30775000000000\ 10^{-7}, 6.20667000000000\ 10^{-6}, 8.43616000000000\ 10^{-7}, 3.99471000000000\ 10^{-6}, -2.92095000000000\ 10^{-6}, 3.42400000000000\ 10^{-6}, 4.74537000000000\ 10^{-7}, -0.0000144450000000000, -3.94483000000000\ 10^{-6}, -3.72046000000000\ 10^{-6}, 5.74396000000000\ 10^{-6}, 5.11234000000000\ 10^{-7}, -3.26537000000000\ 10^{-6}, -2.45651000000000\ 10^{-6}, -8.69195000000000\ 10^{-6}, 9.95978000000000\ 10^{-6}, 6.64839000000000\ 10^{-6}, -9.54467000000000\ 10^{-6}, -2.82228000000000\ 10^{-6}, 0.000443274000000000, 0.000579896000000000, 0.000355613000000000, 0.000220012000000000, -0.000895167000000000, 0.000755606000000000, -0.201185000000000, -0.400953000000000, -0.550778000000000, -0.663144000000000, -0.747364000000000, -0.810562000000000, -0.857948000000000, -0.893476000000000, -0.920117000000000]$$ **(6)**

> $PlotOpts0 := style = point, symbol = solidcircle, color = red, symbolsize = 8$

$$PlotOpts0 := style = point, symbol = solidcircle, color = red, symbolsize = 8$$ **(7)**

> $PData := loglogplot(N, DeltaT, PlotOpts0)$



> $LogN := map(\log, N);$

$$LogN := [4.60517018598809, 4.89034912822175, 5.17614973257383, 5.46383180502561, 5.75257263882563, 6.04025471127741, 6.32793678372919, 6.61606518513282, 6.90374725758460, 7.19142933003638, 7.47929963778283, 7.76726399675731, 8.05515773181968, 8.34307787116938, 8.63087895582005, 8.91865027812686, 9.20643274714516, 9.49424030113250, 9.78205411225260, 10.0698914258577, 10.3577110782781, 10.6455439377989, 10.9333747909928, 11.2211952096719, 11.5090178401392, 11.7968404508528, 12.0846617872759, 12.3724849858579, 12.6603088700073, 12.9481314114591, 13.2359545282642, 13.5237776251786, 13.8116009253007, 14.0994240381844, 14.3872474448141, 14.6750705022004, 14.9628936455349, 15.2507167425195, 15.5385397997828, 15.8263629859217, 16.1141861186865, 16.4020092817448, 16.6898324248993, 16.9776555528596, 17.2654786750357, 17.5533018117069, 17.8411249463342, 18.1289480789158, 18.4167712116805, 18.7045943446256, 18.9924174840207, 19.2802406204528, 19.5680637585057, 19.8558868951783] \quad (8)$$

> $LogDeltaT := map(\log, DeltaT);$

$$LogDeltaT := [-13.5531462934968, -13.4100454498561, -13.9208710736221, -12.7168982692962, -13.4790383213431, -12.1668519323769, \quad (9)$$

```
−13.1736566717919, −11.6182859806281, −12.6523597481586,
−12.4045235842540, −10.7902194821687, −10.5345993421766,
−11.6072361444415, −11.3223051053616, −9.67078978841711,
−10.7709881202409, −10.4868838691370, −10.1992017966852,
−9.76895665957852, −9.61981350148189, −7.96072520977155,
−9.05504748757015, −7.34812243909957, −8.50972117657754,
−8.18179295775636, −6.48392648685701, −7.60551307209977,
−6.29251558729872, −5.94932502091389, −6.76080186602597,
−6.08086422837260, −5.43390802085438, −5.85072916563496,
−4.57634952017990, −4.68901929549285, −4.68156538724180,
−4.42398260523534, −3.64737289396221, −4.06569879803219,
−3.49892708615708, −3.60919619564991, −2.80403480828156,
−2.71912682098081, −2.71862491684306, −2.33743847682861,
−2.02215424725646, −1.68428538872285, −1.49392411622176,
−1.14700977994363, −0.746769500813357, −0.502834306236580,
−0.364485366030709, −0.0645555879498751, 0.208582045315296 ]
```

```
> LogLogFit := Fit(a·x + b, LogN, LogDeltaT, x)
```

$$LogLogFit := 0.943613956315727\,x - 18.5199994827706 \quad \textbf{(10)}$$

```
> LinFit := simplify(exp(subs(x = log(n), LogLogFit)))
```

$$LinFit := 9.05454058667457\,10^{-9}\,n^{0.9436139563} \quad \textbf{(11)}$$

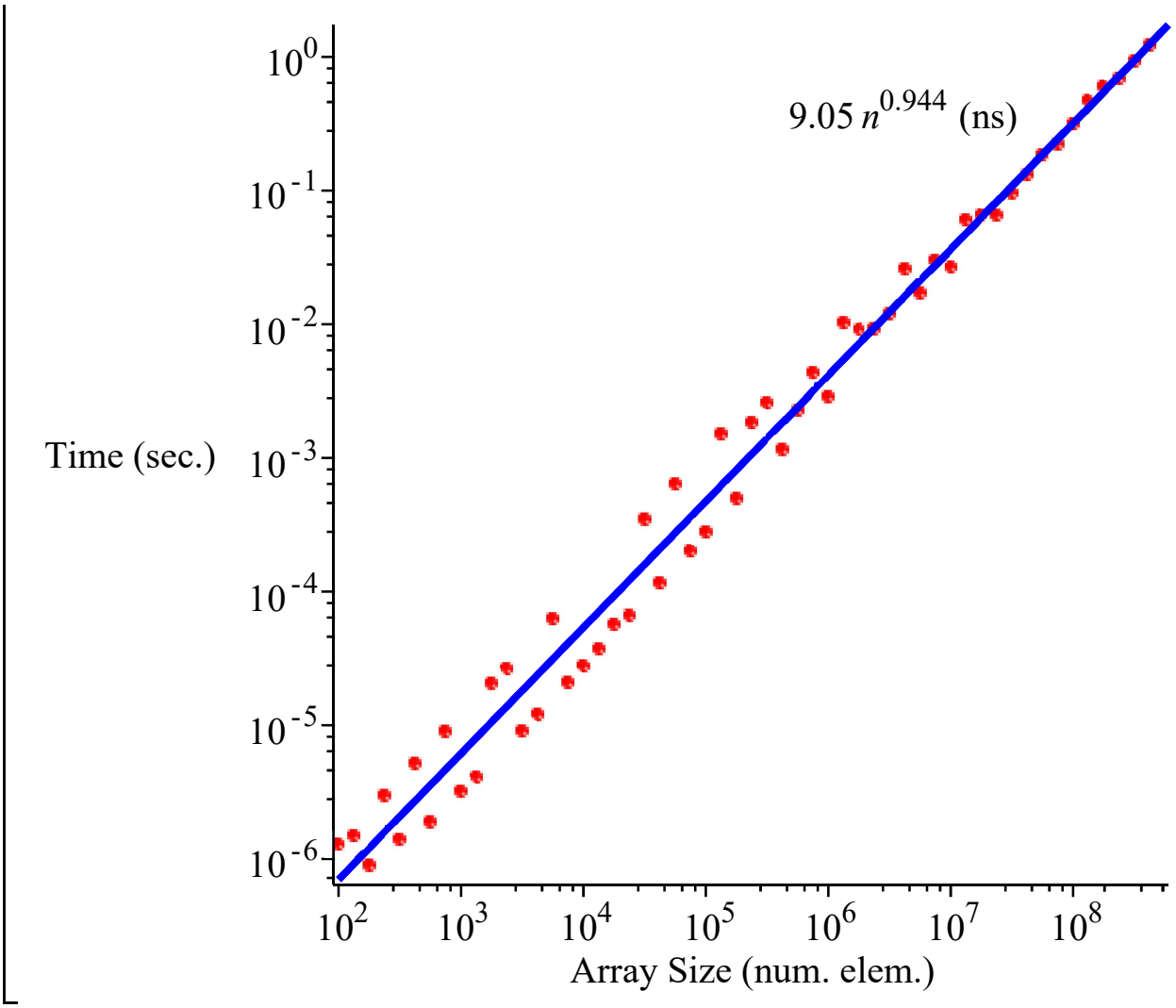
```
> PlotOpts1 := color = blue, thickness = 3
```

$$PlotOpts1 := color = blue, thickness = 3 \quad \textbf{(12)}$$

```
> PFit := loglogplot(LinFit, n = 1e2..6e8, PlotOpts1) :
> PLegend := textplot([4e6, 0.4, typeset(9.05·n^0.944, " (ns)")]) :
> PlotOpts2 := labels = ["Array Size (num. elem.)", "Time (sec.)"];
```

$$PlotOpts2 := labels = ["Array Size (num. elem.)", "Time (sec.)"] \quad \textbf{(13)}$$

```
> display(PData, PFit, PLegend, PlotOpts2)
```



Not a good fit

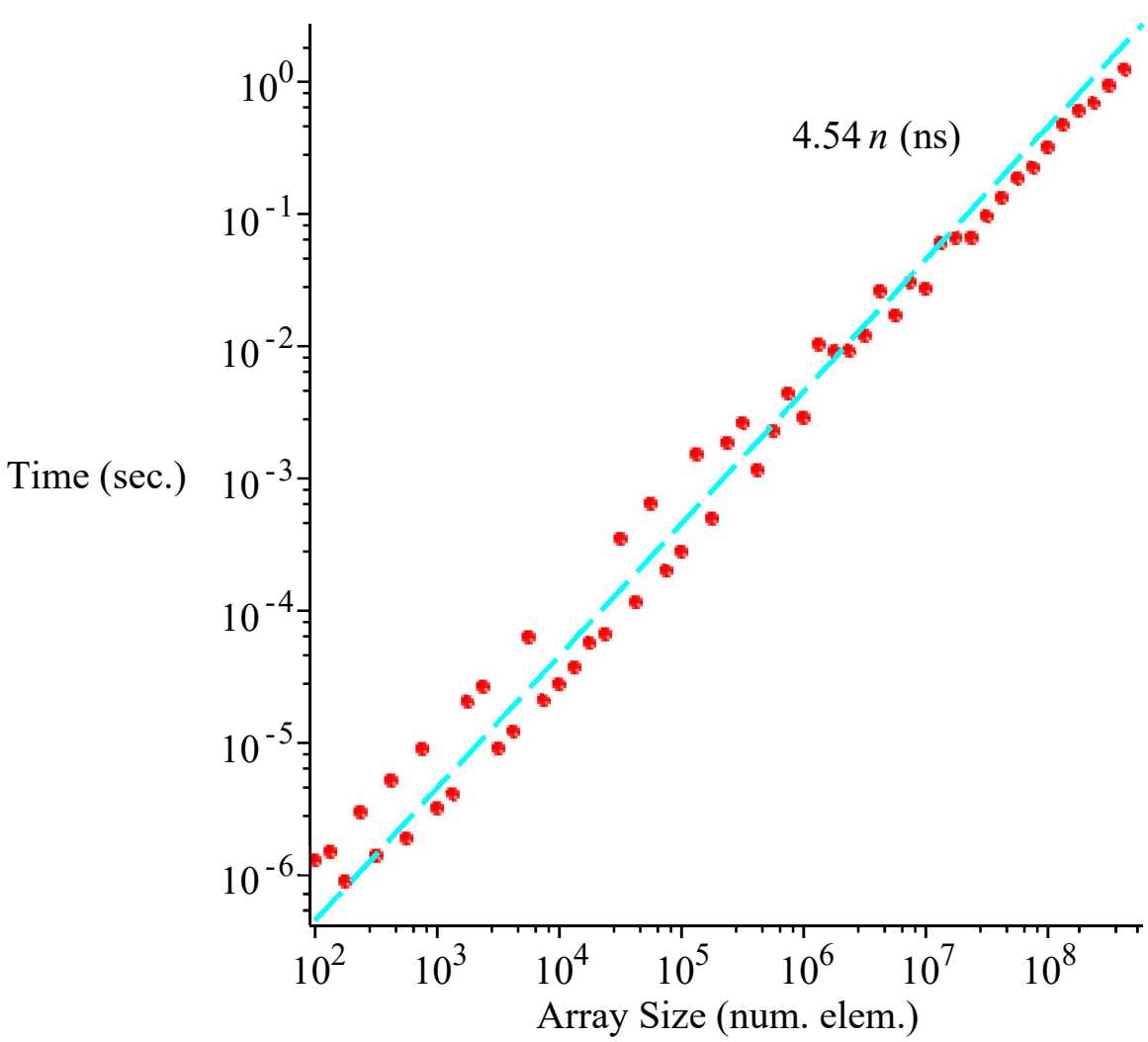
```
> LogLogFitA := Fit(x + b, LogN, LogDeltaT, x)
```

$$LogLogFitA := -19.2095233430932 + x \quad \textbf{(2.1)}$$

```
> LinFitA := simplify(exp(subs(x = ln(n), LogLogFitA)))
```

$$LinFitA := 4.54370379735632\ 10^{-9}\ n \quad \textbf{(2.2)}$$

```
> PFitA := loglogplot(LinFitA, n = 1e2..6e8, color = cyan, linestyle = dash, thickness = 2):
> PLegendA := textplot([4e6, 0.4, typeset(4.54· n, " (ns)")]):
> display(PData, PFitA, PLegendA, PlotOpts2)
```



> $NumPoint := numelems(N)$

$$NumPoint := 54 \quad \textbf{(14)}$$

> $TimePer := \left[seq\left(\frac{DeltaT[k]}{N[k]}, k = 1..NumPoint \right) \right];$

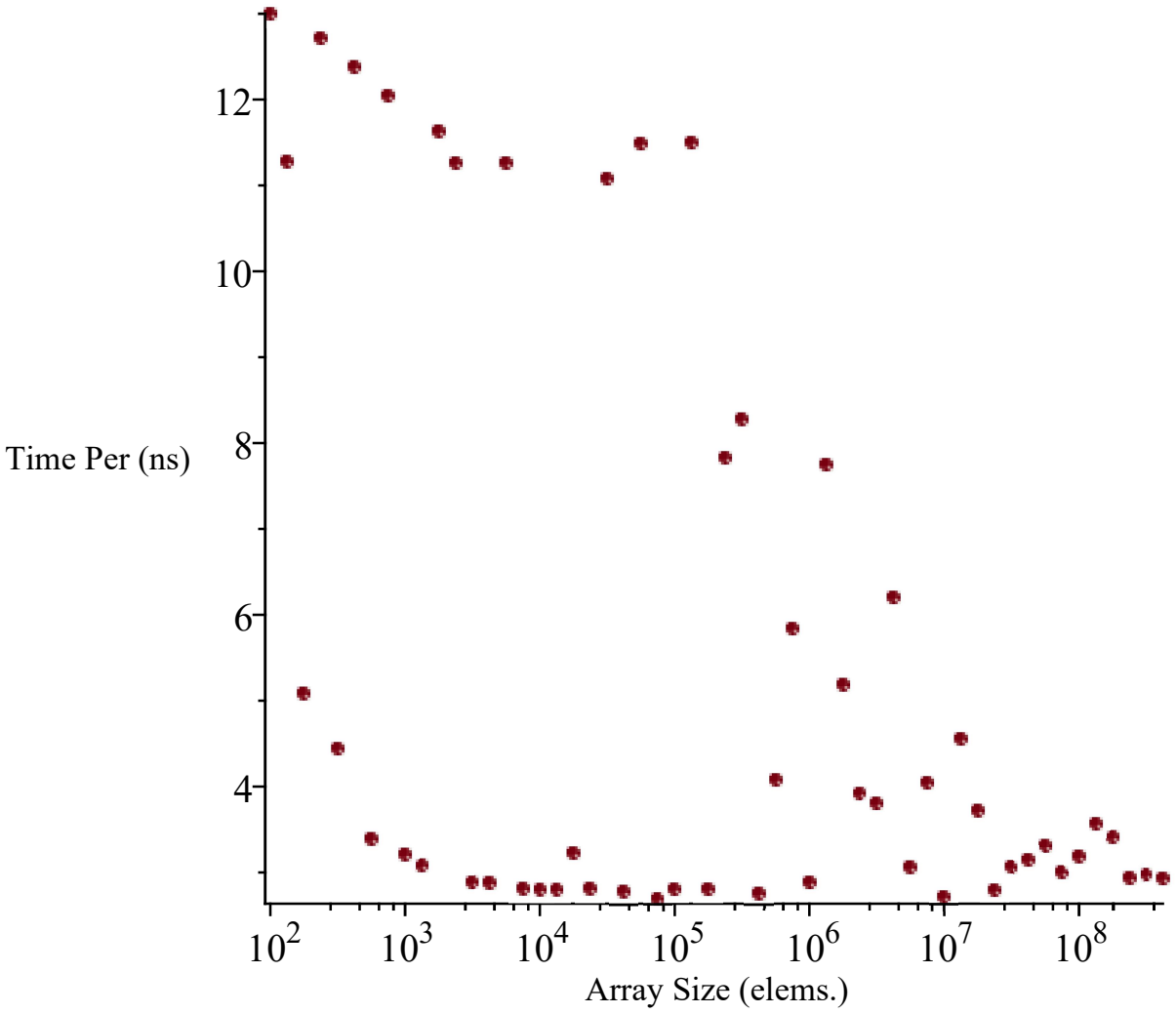
$$TimePer := [1.30000000000000\ 10^{-8}, 1.12781954887218\ 10^{-8}, 5.08474576271186\ 10^{-9}, \quad \textbf{(15)}$$
$$1.27118644067797\ 10^{-8}, 4.44444444444444\ 10^{-9}, 1.23809523809524\ 10^{-8},$$
$$3.39285714285714\ 10^{-9}, 1.20481927710843\ 10^{-8}, 3.21285140562249\ 10^{-9},$$
$$3.08734939759036\ 10^{-9}, 1.16318464144551\ 10^{-8}, 1.12616426756986\ 10^{-8},$$
$$2.88888888888889\ 10^{-9}, 2.88026660318972\ 10^{-9}, 1.12638343448768\ 10^{-8},$$
$$2.81124497991968\ 10^{-9}, 2.80092360204799\ 10^{-9}, 2.80057215990364\ 10^{-9},$$
$$3.22926664032067\ 10^{-9}, 2.81105795690276\ 10^{-9}, 1.10765421124480\ 10^{-8},$$
$$2.78062135460064\ 10^{-9}, 1.14933499955369\ 10^{-8}, 2.69756482857411\ 10^{-9},$$
$$2.80795100893485\ 10^{-9}, 1.15017465670923\ 10^{-8}, 2.80973726105660\ 10^{-9},$$
$$7.83237092103703\ 10^{-9}, 8.27825291910322\ 10^{-9}, 2.75752230086347\ 10^{-9},$$
$$4.08142862498594\ 10^{-9}, 5.84496256867764\ 10^{-9}, 2.88907316348391\ 10^{-9},$$
$$7.74844577879694\ 10^{-9}, 5.19137760600585\ 10^{-9}, 3.92211067934285\ 10^{-9},$$
$$3.80528003875631\ 10^{-9}, 6.20388805076335\ 10^{-9}, 3.06187428266611\ 10^{-9},$$

$4.04699959114725\ 10^{-9}, 2.71796522852518\ 10^{-9}, 4.55954002587633\ 10^{-9},$
$3.72216910489500\ 10^{-9}, 2.79263436515887\ 10^{-9}, 3.06592305856863\ 10^{-9},$
$3.15128333555806\ 10^{-9}, 3.31300456721076\ 10^{-9}, 3.00534882207837\ 10^{-9},$
$3.18829039027381\ 10^{-9}, 3.56763171859368\ 10^{-9}, 3.41444187638342\ 10^{-9},$
$2.94038301613731\ 10^{-9}, 2.97619753415080\ 10^{-9}, 2.93280993921773\ 10^{-9}]$

> *PlotOptsB0* := *style* = *point*, *symbol* = *solidcircle*, *symbolsize* = 8, *labels* = ["Array Size (elems.)", "Time Per (ns)"]

PlotOptsB := *style* = *point*, *symbol* = *solidcircle*, *symbolsize* = 8, *labels* = ["Array Size (elems.)", "Time Per (ns)"] **(16)**

> *PTimePerData* := *semilogplot*(*N*, *TimePer*·1e9, *PlotOptsB0*)



> *PlotOptsB1* := *style* = *point*, *symbol* = *solidcircle*, *symbolsize* = 8, *labels* = ["Array Size (elems.)", "Time Per\n(clock cycles)"]

PlotOptsB1 := *style* = *point*, *symbol* = *solidcircle*, *symbolsize* = 8, *labels* = ["Array Size (elems.)", "Time Per (clock cycles)"] **(17)**

> *ClockRate* := 3.3e9

> *PTimePerData* := *semilogplot*(*N*, *TimePer*·*ClockRate*, *PlotOptsB1*) :

Add Lower bound graph

```
> min(TimePer)·ClockRate; max(TimePer)·ClockRate
```

$$8.90196393429455$$

$$42.9000000000000 \qquad \textbf{(3.1)}$$

```
> P9 := semilogplot(9, 1e2..6e8, color=green, thickness=2):
```

```
> CacheSize := 6e6
```

$$CacheSize := 6.\ 10^{6} \qquad \textbf{(18)}$$

```
> L2 := CacheSize/4
```

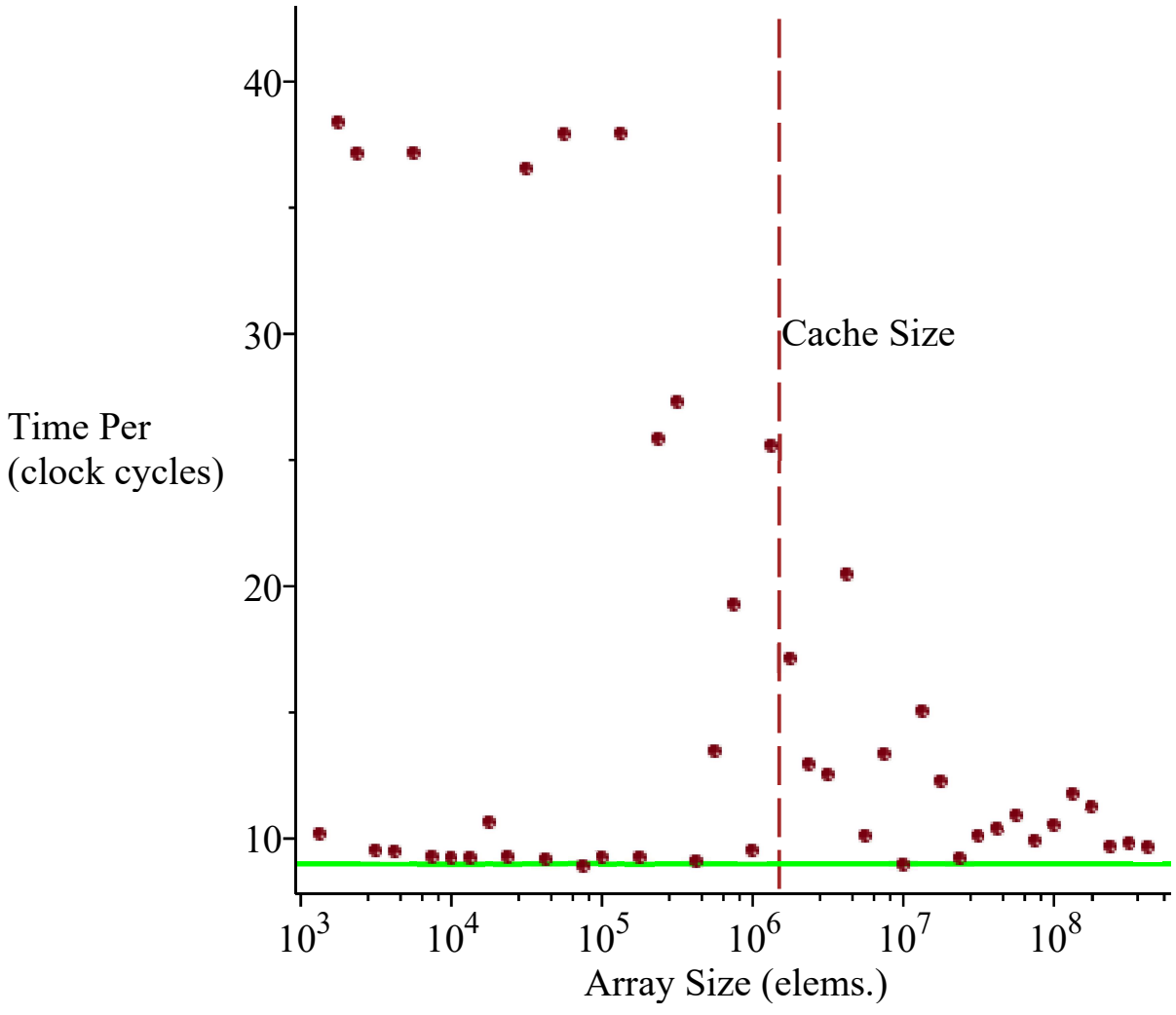
```
> PCache := semilogplot([L2, t, t=8..43], color=brown, linestyle=dash):
```

```
> PLegendA := textplot([6e6, 30, "Cache Size"]):
```

```
> PlotOpts := labels=["Array Size (elems.)", "Time Per\n(clock cycles)"]
```

$$PlotOpts := labels = [\text{"Array Size (elems.)"}, \text{"Time Per (clock cycles)"}] \qquad \textbf{(19)}$$

```
> display(PCache, PLegendA, P9, PTimePerData, view=[1e3..6e8, 8..43], PlotOpts)
```



Not data rate limited

> $DataRate := 21e9$

$$DataRate := 2.1\ 10^{10} \tag{4.1}$$

> $ElemLoadTime = \frac{4}{DataRate}$

$$ElemLoadTime = 1.904761905\ 10^{-10} \tag{4.2}$$

> $BytesPerClock = \frac{DataRate}{ClockRate}$

$$BytesPerClock = 6.363636364 \tag{4.3}$$

> $LoadPerComp = \frac{9}{4} \cdot \frac{DataRate}{ClockRate}$

$$LoadPerComp = 14.31818182 \tag{4.4}$$