

Data File

Variable: CDOASb

Raw Statistics  
Number of Valid Samples 20  
Number of Unique Samples 20  
Minimum 2.82  
Maximum 810.5  
Mean 195.9348  
Median 135.75  
Standard Deviation 189.9368  
Variance 36075.98  
Coefficient of Variation 0.969388  
Skewness 1.876575

Gamma Statistics  
k hat 0.913274  
k star (bias corrected) 0.809616  
Theta hat 214.541  
Theta star 242.0094  
nu hat 36.53096  
nu star 32.38465  
Approx. Chi Square Value (.05) 20.3752  
Adjusted Level of Significance 0.038  
Adjusted Chi Square Value 19.6228

Log-transformed Statistics  
Minimum of log data 1.036737  
Maximum of log data 6.697651  
Mean of log data 4.638816  
Standard Deviation of log data 1.466624  
Variance of log data 2.150987

RECOMMENDATION  
Data follow gamma distribution (0.05)  
  
Use Approximate Gamma UCL

Normal Distribution Test  
Shapiro-Wilk Test Statistic 0.827746  
Shapiro-Wilk 5% Critical Value 0.905  
Data not normal at 5% significance level

95% UCL (Assuming Normal Distribution)  
Student's-t UCL 269.373

Gamma Distribution Test  
A-D Test Statistic 0.380673  
A-D 5% Critical Value 0.771954  
K-S Test Statistic 0.153825  
K-S 5% Critical Value 0.200047

Data follow gamma distribution  
at 5% significance level  
  
95% UCLs (Assuming Gamma Distribution)  
Approximate Gamma UCL 311.4217  
Adjusted Gamma UCL 323.3625

Lognormal Distribution Test  
Shapiro-Wilk Test Statistic 0.884109  
Shapiro-Wilk 5% Critical Value 0.905  
Data not lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)  
95% H-UCL 922.2136  
95% Chebyshev (MVUE) UCL 742.735  
97.5% Chebyshev (MVUE) UCL 945.2243  
99% Chebyshev (MVUE) UCL 1342.975

95% Non-parametric UCLs  
CLT UCL 265.7936  
Adj-CLT UCL (Adjusted for skewness) 284.8362  
Mod-t UCL (Adjusted for skewness) 272.3433  
Jackknife UCL 269.373  
Standard Bootstrap UCL 263.843  
Bootstrap-t UCL 305.0101  
Hall's Bootstrap UCL 354.0841  
Percentile Bootstrap UCL 270.9638  
BCA Bootstrap UCL 284.842  
95% Chebyshev (Mean, Sd) UCL 381.0622  
97.5% Chebyshev (Mean, Sd) UCL 461.167  
99% Chebyshev (Mean, Sd) UCL 618.5174

Data File

Variable: CDOACd

Raw Statistics

Number of Valid Samples	20
Number of Unique Samples	20
Minimum	40.8
Maximum	373.1
Mean	151.076
Median	157.9
Standard Deviation	91.66247
Variance	8402.009
Coefficient of Variation	0.606731
Skewness	0.701508

Gamma Statistics

k hat	2.656983
k star (bias corrected)	2.291769
Theta hat	56.85998
Theta star	65.92113
nu hat	106.2793
nu star	91.67076
Approx.Chi Square Value (.05)	70.58834
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	69.12684

Log-transformed Statistics

Minimum of log data	3.708682
Maximum of log data	5.921846
Mean of log data	4.817953
Standard Deviation of log data	0.681228
Variance of log data	0.464072

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.929758
Shapiro-Wilk 5% Critical Value	0.905
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	186.5169

Gamma Distribution Test

A-D Test Statistic	0.41667
A-D 5% Critical Value	0.749204
K-S Test Statistic	0.144853
K-S 5% Critical Value	0.1954
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	196.1974
Adjusted Gamma UCL	200.3455

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.934163
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	219.6592
95% Chebyshev (MVUE) UCL	262.5787
97.5% Chebyshev (MVUE) UCL	309.6156
99% Chebyshev (MVUE) UCL	402.0105

95% Non-parametric UCLs

CLT UCL	184.7895
Adj-CLT UCL (Adjusted for skewness)	188.2249
Mod-t UCL (Adjusted for skewness)	187.0528
Jackknife UCL	186.5169
Standard Bootstrap UCL	183.6613
Bootstrap-t UCL	190.3429
Hall's Bootstrap UCL	192.7495
Percentile Bootstrap UCL	185.026
BCA Bootstrap UCL	187.2885
95% Chebyshev (Mean, Sd) UCL	240.4175
97.5% Chebyshev (Mean, Sd) UCL	279.0757
99% Chebyshev (Mean, Sd) UCL	355.0121

Data File

Variable: CDOACu

Raw Statistics  
Number of Valid Samples 20  
Number of Unique Samples 20  
Minimum 760  
Maximum 17900  
Mean 4935.338  
Median 4111.5  
Standard Deviation 4004.674  
Variance 16037415  
Coefficient of Variation 0.811429  
Skewness 1.814089

Gamma Statistics  
k hat 1.700051  
k star (bias corrected) 1.478377  
Theta hat 2903.052  
Theta star 3338.349  
nu hat 68.00205  
nu star 59.13507  
Approx. Chi Square Value (.05) 42.45078  
Adjusted Level of Significance 0.038  
Adjusted Chi Square Value 41.33378

Log-transformed Statistics  
Minimum of log data 6.633318  
Maximum of log data 9.792556  
Mean of log data 8.182106  
Standard Deviation of log data 0.87993  
Variance of log data 0.774277

RECOMMENDATION  
Data follow gamma distribution (0.05)  
  
Use Approximate Gamma UCL

Normal Distribution Test  
Shapiro-Wilk Test Statistic 0.833196  
Shapiro-Wilk 5% Critical Value 0.905  
Data not normal at 5% significance level

95% UCL (Assuming Normal Distribution)  
Student's-t UCL 6483.728

Gamma Distribution Test  
A-D Test Statistic 0.341861  
A-D 5% Critical Value 0.755631  
K-S Test Statistic 0.116512  
K-S 5% Critical Value 0.196908

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)  
Approximate Gamma UCL 6875.057  
Adjusted Gamma UCL 7060.849

Lognormal Distribution Test  
Shapiro-Wilk Test Statistic 0.93708  
Shapiro-Wilk 5% Critical Value 0.905  
Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)  
95% H-UCL 8605.203  
95% Chebyshev (MVUE) UCL 9968.713  
97.5% Chebyshev (MVUE) UCL 12060.55  
99% Chebyshev (MVUE) UCL 16169.56

95% Non-parametric UCLs  
CLT UCL 6408.258  
Adj-CLT UCL (Adjusted for skewness) 6796.388  
Mod-t UCL (Adjusted for skewness) 6544.268  
Jackknife UCL 6483.728  
Standard Bootstrap UCL 6346.043  
Bootstrap-t UCL 7029.385  
Hall's Bootstrap UCL 8516.699  
Percentile Bootstrap UCL 6533.378  
BCA Bootstrap UCL 6724.065  
95% Chebyshev (Mean, Sd) UCL 8838.611  
97.5% Chebyshev (Mean, Sd) UCL 10527.56  
99% Chebyshev (Mean, Sd) UCL 13845.18

Data File

Variable: CDOA Pb

Raw Statistics

Number of Valid Samples	19
Number of Unique Samples	19
Minimum	2076.5
Maximum	16880
Mean	7683.816
Median	7922
Standard Deviation	3990.947
Variance	15927655
Coefficient of Variation	0.519396
Skewness	0.480665

Gamma Statistics

k hat	3.421771
k star (bias corrected)	2.916579
Theta hat	2245.567
Theta star	2634.53
nu hat	130.0273
nu star	110.83
Approx. Chi Square Value (.05)	87.52503
Adjusted Level of Significance	0.03687
Adjusted Chi Square Value	85.71562

Log-transformed Statistics

Minimum of log data	7.638439
Maximum of log data	9.733885
Mean of log data	8.79369
Standard Deviation of log data	0.606845
Variance of log data	0.368261

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.963465
Shapiro-Wilk 5% Critical Value	0.901
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	9271.5
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Gamma Distribution Test

A-D Test Statistic	0.294554
A-D 5% Critical Value	0.746875
K-S Test Statistic	0.125818
K-S 5% Critical Value	0.199675

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	9729.757
Adjusted Gamma UCL	9935.147

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.938785
Shapiro-Wilk 5% Critical Value	0.901
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	10739.41
95% Chebyshev (MVUE) UCL	12833.7
97.5% Chebyshev (MVUE) UCL	14995.69
99% Chebyshev (MVUE) UCL	19242.49

95% Non-parametric UCLs

CLT UCL	9189.821
Adj-CLT UCL (Adjusted for skewness)	9297.702
Mod-t UCL (Adjusted for skewness)	9288.327
Jackknife UCL	9271.5
Standard Bootstrap UCL	9114.712
Bootstrap-t UCL	9514.056
Hall's Bootstrap UCL	9351.347
Percentile Bootstrap UCL	9185.974
BCA Bootstrap UCL	9228.789
95% Chebyshev (Mean, Sd) UCL	11674.76
97.5% Chebyshev (Mean, Sd) UCL	13401.65
99% Chebyshev (Mean, Sd) UCL	16793.78

Data File

Variable: CDOAPb

Raw Statistics	
Number of Valid Samples	20
Number of Unique Samples	20
Minimum	2076.5
Maximum	37410
Mean	9380.775
Median	8259
Standard Deviation	7744.412
Variance	59975917
Coefficient of Variation	0.825562
Skewness	2.644857

Gamma Statistics	
k hat	2.182207
k star (bias corrected)	1.888209
Theta hat	4298.756
Theta star	4968.081
nu hat	87.28827
nu star	75.52836
Approx. Chi Square Value (.05)	56.50779
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	55.2079

Log-transformed Statistics	
Minimum of log data	7.638439
Maximum of log data	10.52969
Mean of log data	8.900129
Standard Deviation of log data	0.717933
Variance of log data	0.515428

**RECOMMENDATION**  
Data follow gamma distribution (0.05)  
  
Use Approximate Gamma UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.736264
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	

95% UCL (Assuming Normal Distribution)	
Student's-t UCL	12375.12

Gamma Distribution Test	
A-D Test Statistic	0.315863
A-D 5% Critical Value	0.751521
K-S Test Statistic	0.116014
K-S 5% Critical Value	0.195913

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	12538.35
Adjusted Gamma UCL	12833.57

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.968508
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	13701.68
95% Chebyshev (MVUE) UCL	16335.33
97.5% Chebyshev (MVUE) UCL	19361.73
99% Chebyshev (MVUE) UCL	25306.5

95% Non-parametric UCLs	
CLT UCL	12229.17
Adj-CLT UCL (Adjusted for skewness)	13323.49
Mod-t UCL (Adjusted for skewness)	12545.81
Jackknife UCL	12375.12
Standard Bootstrap UCL	12195.22
Bootstrap-t UCL	14592
Hall's Bootstrap UCL	25825.26
Percentile Bootstrap UCL	12617.18
BCA Bootstrap UCL	13501.4
95% Chebyshev (Mean, Sd) UCL	16929.09
97.5% Chebyshev (Mean, Sd) UCL	20195.26
99% Chebyshev (Mean, Sd) UCL	26611

Data File

Variable: CDOASe

Raw Statistics	
Number of Valid Samples	20
Number of Unique Samples	20
Minimum	6.84
Maximum	182.8
Mean	39.56725
Median	29.54
Standard Deviation	40.16459
Variance	1613.194
Coefficient of Variation	1.015097
Skewness	2.597357

Gamma Statistics	
k hat	1.45806
k star (bias corrected)	1.272685
Theta hat	27.13691
Theta star	31.08959
nu hat	58.32242
nu star	50.90739
Approx. Chi Square Value (.05)	35.51962
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	34.50395

Log-transformed Statistics	
Minimum of log data	1.922788
Maximum of log data	5.208393
Mean of log data	3.297433
Standard Deviation of log data	0.900639
Variance of log data	0.811151

**RECOMMENDATION**  
Data follow gamma distribution (0.05)  
  
Use Approximate Gamma UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.727652
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	55.09672

Gamma Distribution Test	
A-D Test Statistic	0.295976
A-D 5% Critical Value	0.758632
K-S Test Statistic	0.089612
K-S 5% Critical Value	0.1976
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	56.70853
Adjusted Gamma UCL	58.37781

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.964578
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	67.43008
95% Chebyshev (MVUE) UCL	77.6669
97.5% Chebyshev (MVUE) UCL	94.18759
99% Chebyshev (MVUE) UCL	126.6393

95% Non-parametric UCLs	
CLT UCL	54.3398
Adj-CLT UCL (Adjusted for skewness)	59.91327
Mod-t UCL (Adjusted for skewness)	55.96607
Jackknife UCL	55.09672
Standard Bootstrap UCL	54.10766
Bootstrap-t UCL	67.68207
Hall's Bootstrap UCL	120.4925
Percentile Bootstrap UCL	55.219
BCA Bootstrap UCL	61.5965
95% Chebyshev (Mean, Sd) UCL	78.71484
97.5% Chebyshev (Mean, Sd) UCL	95.65404
99% Chebyshev (Mean, Sd) UCL	128.9278

Data File

Variable: CDOAAg

Raw Statistics	
Number of Valid Samples	20
Number of Unique Samples	20
Minimum	7.13
Maximum	289.4
Mean	65.54075
Median	38.755
Standard Deviation	71.66684
Variance	5136.135
Coefficient of Variation	1.09347
Skewness	1.927829

Gamma Statistics	
k hat	1.087962
k star (bias corrected)	0.958101
Theta hat	60.24174
Theta star	68.40691
nu hat	43.5185
nu star	38.32405
Approx.Chi Square Value (.05)	25.14432
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	24.30089

Log-transformed Statistics	
Minimum of log data	1.964311
Maximum of log data	5.66781
Mean of log data	3.657221
Standard Deviation of log data	1.069413
Variance of log data	1.143643

RECOMMENDATION  
Data follow gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.77231
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	93.25043

Gamma Distribution Test	
A-D Test Statistic	0.633212
A-D 5% Critical Value	0.766153
K-S Test Statistic	0.182142
K-S 5% Critical Value	0.199014

Data follow gamma distribution at 5% significance level	
95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	99.8948
Adjusted Gamma UCL	103.3619

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.941978
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	132.8946
95% Chebyshev (MVUE) UCL	143.4499
97.5% Chebyshev (MVUE) UCL	177.0321
99% Chebyshev (MVUE) UCL	242.9977

95% Non-parametric UCLs	
CLT UCL	91.89984
Adj-CLT UCL (Adjusted for skewness)	99.28122
Mod-t UCL (Adjusted for skewness)	94.40178
Jackknife UCL	93.25043
Standard Bootstrap UCL	90.85473
Bootstrap-t UCL	106.1524
Hall's Bootstrap UCL	131.1624
Percentile Bootstrap UCL	93.74575
BCA Bootstrap UCL	99.2855
95% Chebyshev (Mean, Sd) UCL	135.3929
97.5% Chebyshev (Mean, Sd) UCL	165.618
99% Chebyshev (Mean, Sd) UCL	224.9894

Data File

Variable: CDOATI

Raw Statistics	
Number of Valid Samples	20
Number of Unique Samples	20
Minimum	2.38
Maximum	24.93
Mean	11.447
Median	10.055
Standard Deviation	7.210912
Variance	51.99726
Coefficient of Variation	0.629939
Skewness	0.6947

Gamma Statistics	
k hat	2.56839
k star (bias corrected)	2.216465
Theta hat	4.456878
Theta star	5.16453
nu hat	102.7356
nu star	88.65859
Approx. Chi Square Value (.05)	67.94615
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	66.51366

Log-transformed Statistics	
Minimum of log data	0.8671
Maximum of log data	3.216072
Mean of log data	2.2306
Standard Deviation of log data	0.687137
Variance of log data	0.472157

**RECOMMENDATION**  
Data follow gamma distribution (0.05)  
  
Use Approximate Gamma UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.900158
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	14.23507

Gamma Distribution Test	
A-D Test Statistic	0.334473
A-D 5% Critical Value	0.749636
K-S Test Statistic	0.111066
K-S 5% Critical Value	0.195496
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	14.93646
Adjusted Gamma UCL	15.25814

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.957293
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	16.65622
95% Chebyshev (MVUE) UCL	19.90402
97.5% Chebyshev (MVUE) UCL	23.48946
99% Chebyshev (MVUE) UCL	30.53238

95% Non-parametric UCLs	
CLT UCL	14.09918
Adj-CLT UCL (Adjusted for skewness)	14.36681
Mod-t UCL (Adjusted for skewness)	14.27681
Jackknife UCL	14.23507
Standard Bootstrap UCL	14.11427
Bootstrap-t UCL	14.58485
Hall's Bootstrap UCL	14.20528
Percentile Bootstrap UCL	14.169
BCA Bootstrap UCL	14.0685
95% Chebyshev (Mean, Sd) UCL	18.47533
97.5% Chebyshev (Mean, Sd) UCL	21.51649
99% Chebyshev (Mean, Sd) UCL	27.49027

Data File

Variable: CDOAZn

Raw Statistics	
Number of Valid Samples	20
Number of Unique Samples	20
Minimum	1275
Maximum	14560
Mean	4824.2
Median	4162.5
Standard Deviation	3122.795
Variance	9751848
Coefficient of Variation	0.647319
Skewness	1.668512

Gamma Statistics	
k hat	2.867287
k star (bias corrected)	2.470528
Theta hat	1682.496
Theta star	1952.7
nu hat	114.6915
nu star	98.8211
Approx. Chi Square Value (.05)	76.88416
Adjusted Level of Significance	0.038
Adjusted Chi Square Value	75.35565

Log-transformed Statistics	
Minimum of log data	7.150701
Maximum of log data	9.586033
Mean of log data	8.297
Standard Deviation of log data	0.635077
Variance of log data	0.403323

**RECOMMENDATION**  
Data follow gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.856503
Shapiro-Wilk 5% Critical Value	0.905
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	6031.616

Gamma Distribution Test	
A-D Test Statistic	0.338248
A-D 5% Critical Value	0.748178
K-S Test Statistic	0.121736
K-S 5% Critical Value	0.195173
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	6200.663
Adjusted Gamma UCL	6326.437

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.960543
Shapiro-Wilk 5% Critical Value	0.905
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	6702.114
95% Chebyshev (MVUE) UCL	8023.094
97.5% Chebyshev (MVUE) UCL	9395.812
99% Chebyshev (MVUE) UCL	12092.25

95% Non-parametric UCLs	
CLT UCL	5972.765
Adj-CLT UCL (Adjusted for skewness)	6251.136
Mod-t UCL (Adjusted for skewness)	6075.036
Jackknife UCL	6031.616
Standard Bootstrap UCL	5952.046
Bootstrap-t UCL	6337.668
Hall's Bootstrap UCL	7124.692
Percentile Bootstrap UCL	6017.9
BCA Bootstrap UCL	6336.75
95% Chebyshev (Mean, Sd) UCL	7867.924
97.5% Chebyshev (Mean, Sd) UCL	9184.946
99% Chebyshev (Mean, Sd) UCL	11771.98

Data File

Variable: CDONAs

Raw Statistics	
Number of Valid Samples	6
Number of Unique Samples	6
Minimum	134.2
Maximum	1179
Mean	602.4667
Median	563.85
Standard Deviation	345.9284
Variance	119666.5
Coefficient of Variation	0.574187
Skewness	0.626788

Gamma Statistics	
k hat	2.934059
k star (bias corrected)	1.578141
Theta hat	205.3356
Theta star	381.7573
nu hat	35.20871
nu star	18.93769
Approx. Chi Square Value (.05)	10.07046
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	7.846141

Log-transformed Statistics	
Minimum of log data	4.899331
Maximum of log data	7.072422
Mean of log data	6.221047
Standard Deviation of log data	0.729148
Variance of log data	0.531657

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.960906
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)	
Student's-t UCL	887.0412

Gamma Distribution Test	
A-D Test Statistic	0.288037
A-D 5% Critical Value	0.70152
K-S Test Statistic	0.222324
K-S 5% Critical Value	0.334634

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	1132.95
Adjusted Gamma UCL	1454.132

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.901207
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	1973.558
95% Chebyshev (MVUE) UCL	1428.958
97.5% Chebyshev (MVUE) UCL	1777.308
99% Chebyshev (MVUE) UCL	2461.574

95% Non-parametric UCLs	
CLT UCL	834.7606
Adj-CLT UCL (Adjusted for skewness)	873.3739
Mod-t UCL (Adjusted for skewness)	893.0641
Jackknife UCL	887.0412
Standard Bootstrap UCL	811.3453
Bootstrap-t UCL	946.1113
Hall's Bootstrap UCL	1237.557
Percentile Bootstrap UCL	818.5833
BCA Bootstrap UCL	824.7667
95% Chebyshev (Mean, Sd) UCL	1218.051
97.5% Chebyshev (Mean, Sd) UCL	1484.415
99% Chebyshev (Mean, Sd) UCL	2007.635

Data File

Variable: CDONsb

Raw Statistics	
Number of Valid Samples	6
Number of Unique Samples	6
Minimum	7.67
Maximum	196.3
Mean	50.28333
Median	23.355
Standard Deviation	72.85643
Variance	5308.06
Coefficient of Variation	1.448918
Skewness	2.257815

Gamma Statistics	
k hat	0.855498
k star (bias corrected)	0.53886
Theta hat	58.77667
Theta star	93.31425
nu hat	10.26598
nu star	6.466322
Approx. Chi Square Value (.05)	1.882084
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	1.121971

Log-transformed Statistics	
Minimum of log data	2.037317
Maximum of log data	5.279644
Mean of log data	3.229941
Standard Deviation of log data	1.210988
Variance of log data	1.466493

**RECOMMENDATION**  
Data follow gamma distribution (0.05)  
  
Use Approximate Gamma UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.653348
Shapiro-Wilk 5% Critical Value	0.788
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	110.2179

Gamma Distribution Test	
A-D Test Statistic	0.584441
A-D 5% Critical Value	0.718504
K-S Test Statistic	0.265431
K-S 5% Critical Value	0.342353
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	172.7596
Adjusted Gamma UCL	289.801

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.889965
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	818.951
95% Chebyshev (MVUE) UCL	137.4371
97.5% Chebyshev (MVUE) UCL	177.6493
99% Chebyshev (MVUE) UCL	256.6384

95% Non-parametric UCLs	
CLT UCL	99.20706
Adj-CLT UCL (Adjusted for skewness)	128.5015
Mod-t UCL (Adjusted for skewness)	114.7873
Jackknife UCL	110.2179
Standard Bootstrap UCL	95.48347
Bootstrap-t UCL	298.4981
Hall's Bootstrap UCL	309.7752
Percentile Bootstrap UCL	107.1383
BCA Bootstrap UCL	117.4667
95% Chebyshev (Mean, Sd) UCL	179.9323
97.5% Chebyshev (Mean, Sd) UCL	236.0315
99% Chebyshev (Mean, Sd) UCL	346.2276

Data File

Variable: CDONCd

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	13.2
Maximum	56.24
Mean	35.18167
Median	37.075
Standard Deviation	14.26417
Variance	203.4664
Coefficient of Variation	0.405443
Skewness	-0.158204

Gamma Statistics

k hat	5.884962
k star (bias corrected)	3.053592
Theta hat	5.978231
Theta star	11.5214
nu hat	70.61955
nu star	36.64311
Approx.Chi Square Value (.05)	23.78467
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	20.12845

Log-transformed Statistics

Minimum of log data	2.580217
Maximum of log data	4.029628
Mean of log data	3.473163
Standard Deviation of log data	0.49331
Variance of log data	0.243355

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.968008
Shapiro-Wilk 5% Critical Value	0.788

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	46.91594
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Gamma Distribution Test

A-D Test Statistic	0.348961
A-D 5% Critical Value	0.6981
K-S Test Statistic	0.216576
K-S 5% Critical Value	0.332735

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	54.20155
Adjusted Gamma UCL	64.04693

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.892165
Shapiro-Wilk 5% Critical Value	0.788

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	65.8934
95% Chebyshev (MVUE) UCL	66.8641
97.5% Chebyshev (MVUE) UCL	80.37993
99% Chebyshev (MVUE) UCL	106.9292

95% Non-parametric UCLs

CLT UCL	44.76018
Adj-CLT UCL (Adjusted for skewness)	44.3583
Mod-t UCL (Adjusted for skewness)	46.85326
Jackknife UCL	46.91594
Standard Bootstrap UCL	44.16354
Bootstrap-t UCL	45.55907
Hall's Bootstrap UCL	46.06967
Percentile Bootstrap UCL	43.46333
BCA Bootstrap UCL	43.55333
95% Chebyshev (Mean, Sd) UCL	60.56494
97.5% Chebyshev (Mean, Sd) UCL	71.5483
99% Chebyshev (Mean, Sd) UCL	93.12298

Data File

Variable: CDONCu

Raw Statistics		Normal Distribution Test	
Number of Valid Samples	6	Shapiro-Wilk Test Statistic	0.883144
Number of Unique Samples	6	Shapiro-Wilk 5% Critical Value	0.788
Minimum	177	Data are normal at 5% significance level	
Maximum	1584	95% UCL (Assuming Normal Distribution)	
Mean	1062.3	Student's-t UCL	1464.47
Median	1100	Gamma Distribution Test	
Standard Deviation	488.8776	A-D Test Statistic	0.797533
Variance	239001.3	A-D 5% Critical Value	0.701677
Coefficient of Variation	0.460207	K-S Test Statistic	0.364685
Skewness	-1.296199	K-S 5% Critical Value	0.334704
Gamma Statistics		Data do not follow gamma distribution at 5% significance level	
k hat	2.879533	95% UCLs (Assuming Gamma Distribution)	
k star (bias corrected)	1.550878	Approximate Gamma UCL	2010.754
Theta hat	368.9139	Adjusted Gamma UCL	2587.938
Theta star	684.9669	Lognormal Distribution Test	
nu hat	34.5544	Shapiro-Wilk Test Statistic	0.700831
nu star	18.61053	Shapiro-Wilk 5% Critical Value	0.788
Approx.Chi Square Value (.05)	9.832119	Data not lognormal at 5% significance level	
Adjusted Level of Significance	0.01222	95% UCLs (Assuming Lognormal Distribution)	
Adjusted Chi Square Value	7.639276	95% H-UCL	4553.718
Log-transformed Statistics		95% Chebyshev (MVUE) UCL	2787.541
Minimum of log data	5.17615	97.5% Chebyshev (MVUE) UCL	3496.518
Maximum of log data	7.367709	99% Chebyshev (MVUE) UCL	4889.165
Mean of log data	6.784617	95% Non-parametric UCLs	
Standard Deviation of log data	0.807747	CLT UCL	1390.586
Variance of log data	0.652456	Adj-CLT UCL (Adjusted for skewness)	1277.736
RECOMMENDATION		Mod-t UCL (Adjusted for skewness)	1446.868
Data are normal (0.05)		Jackknife UCL	1464.47
Use Student's-t UCL		Standard Bootstrap UCL	1369.001
		Bootstrap-t UCL	1372.402
		Hall's Bootstrap UCL	1321.696
		Percentile Bootstrap UCL	1342
		BCA Bootstrap UCL	1296.133
		95% Chebyshev (Mean, Sd) UCL	1932.264
		97.5% Chebyshev (Mean, Sd) UCL	2308.698
		99% Chebyshev (Mean, Sd) UCL	3048.13

Data File

Variable: CDONPb

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	970.7
Maximum	3730
Mean	2158.817
Median	1829.5
Standard Deviation	1228.339
Variance	1508817
Coefficient of Variation	0.568987
Skewness	0.573539

Gamma Statistics

k hat	3.68745
k star (bias corrected)	1.954836
Theta hat	585.4498
Theta star	1104.347
nu hat	44.2494
nu star	23.45803
Approx. Chi Square Value (.05)	13.43557
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	10.79987

Log-transformed Statistics

Minimum of log data	6.878017
Maximum of log data	8.224164
Mean of log data	7.535635
Standard Deviation of log data	0.590007
Variance of log data	0.348108

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.83556
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	3169.298

Gamma Distribution Test

A-D Test Statistic	0.469429
A-D 5% Critical Value	0.700402
K-S Test Statistic	0.226078
K-S 5% Critical Value	0.333856
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	3769.219
Adjusted Gamma UCL	4689.095

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.868836
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	4857.873
95% Chebyshev (MVUE) UCL	4421.815
97.5% Chebyshev (MVUE) UCL	5400.565
99% Chebyshev (MVUE) UCL	7323.131

95% Non-parametric UCLs

CLT UCL	2983.657
Adj-CLT UCL (Adjusted for skewness)	3109.118
Mod-t UCL (Adjusted for skewness)	3188.867
Jackknife UCL	3169.298
Standard Bootstrap UCL	2900.255
Bootstrap-t UCL	4163.947
Hall's Bootstrap UCL	6168.284
Percentile Bootstrap UCL	2928.617
BCA Bootstrap UCL	2935.45
95% Chebyshev (Mean, Sd) UCL	4344.662
97.5% Chebyshev (Mean, Sd) UCL	5290.479
99% Chebyshev (Mean, Sd) UCL	7148.354

Data File

Variable: CDONSe

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	0.03
Maximum	7.23
Mean	4.99
Median	5.38
Standard Deviation	2.59056
Variance	6.711
Coefficient of Variation	0.51915
Skewness	-1.790888

Gamma Statistics

k hat	0.831262
k star (bias corrected)	0.526742
Theta hat	6.002924
Theta star	9.473331
nu hat	9.975138
nu star	6.320902
Approx. Chi Square Value (.05)	1.805464
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	1.067164

Log-transformed Statistics

Minimum of log data	-3.506558
Maximum of log data	1.978239
Mean of log data	0.897034
Standard Deviation of log data	2.162338
Variance of log data	4.675705

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.796488
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	7.121098

Gamma Distribution Test

A-D Test Statistic	1.392975
A-D 5% Critical Value	0.719075
K-S Test Statistic	0.480346
K-S 5% Critical Value	0.342605
Data do not follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	17.46991
Adjusted Gamma UCL	29.5562

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.560165
Shapiro-Wilk 5% Critical Value	0.788
Data not lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	113811.7
95% Chebyshev (MVUE) UCL	51.62109
97.5% Chebyshev (MVUE) UCL	68.73771
99% Chebyshev (MVUE) UCL	102.36

95% Non-parametric UCLs

CLT UCL	6.729583
Adj-CLT UCL (Adjusted for skewness)	5.903372
Mod-t UCL (Adjusted for skewness)	6.992226
Jackknife UCL	7.121098
Standard Bootstrap UCL	6.566789
Bootstrap-t UCL	6.499343
Hall's Bootstrap UCL	6.13216
Percentile Bootstrap UCL	6.41
BCA Bootstrap UCL	6.148333
95% Chebyshev (Mean, Sd) UCL	9.599935
97.5% Chebyshev (Mean, Sd) UCL	11.59466
99% Chebyshev (Mean, Sd) UCL	15.5129

Data File

Variable: CDONAg

Raw Statistics		Normal Distribution Test	
Number of Valid Samples	6	Shapiro-Wilk Test Statistic	0.9076
Number of Unique Samples	6	Shapiro-Wilk 5% Critical Value	0.788
Minimum	6.91	Data are normal at 5% significance level	
Maximum	39.19	95% UCL (Assuming Normal Distribution)	
Mean	20.82833	Student's-t UCL	31.38359
Median	16.705	Gamma Distribution Test	
Standard Deviation	12.83096	A-D Test Statistic	0.256641
Variance	164.6335	A-D 5% Critical Value	0.701213
Coefficient of Variation	0.616034	K-S Test Statistic	0.196888
Skewness	0.644984	K-S 5% Critical Value	0.334463
Gamma Statistics		Data follow gamma distribution at 5% significance level	
k hat	3.086589	95% UCLs (Assuming Gamma Distribution)	
k star (bias corrected)	1.654405	Approximate Gamma UCL	38.49661
Theta hat	6.748011	Adjusted Gamma UCL	49.05
Theta star	12.58962	Lognormal Distribution Test	
nu hat	37.03906	Shapiro-Wilk Test Statistic	0.960012
nu star	19.85286	Shapiro-Wilk 5% Critical Value	0.788
Approx. Chi Square Value (.05)	10.74126	Data are lognormal at 5% significance level	
Adjusted Level of Significance	0.01222	95% UCLs (Assuming Lognormal Distribution)	
Adjusted Chi Square Value	8.430215	95% H-UCL	54.77907
Log-transformed Statistics		95% Chebyshev (MVUE) UCL	45.23492
Minimum of log data	1.93297	97.5% Chebyshev (MVUE) UCL	55.7577
Maximum of log data	3.668422	99% Chebyshev (MVUE) UCL	76.42767
Mean of log data	2.865664	95% Non-parametric UCLs	
Standard Deviation of log data	0.65583	CLT UCL	29.44443
Variance of log data	0.430113	Adj-CLT UCL (Adjusted for skewness)	30.91823
RECOMMENDATION		Mod-t UCL (Adjusted for skewness)	31.61347
Data are normal (0.05)		Jackknife UCL	31.38359
Use Student's-t UCL		Standard Bootstrap UCL	28.8672
		Bootstrap-t UCL	42.67302
		Hall's Bootstrap UCL	50.99266
		Percentile Bootstrap UCL	29.47167
		BCA Bootstrap UCL	29.47167
		95% Chebyshev (Mean, Sd) UCL	43.66119
		97.5% Chebyshev (Mean, Sd) UCL	53.54098
		99% Chebyshev (Mean, Sd) UCL	72.94793

Data File

Variable: CDONTI

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	1.97
Maximum	3.46
Mean	2.42
Median	2.195
Standard Deviation	0.57765
Variance	0.33368
Coefficient of Variation	0.238699
Skewness	1.45266

Gamma Statistics

k hat	23.66973
k star (bias corrected)	11.94597
Theta hat	0.10224
Theta star	0.202579
nu hat	284.0367
nu star	143.3517
Approx. Chi Square Value (.05)	116.6777
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	107.9792

Log-transformed Statistics

Minimum of log data	0.678034
Maximum of log data	1.241269
Mean of log data	0.862495
Standard Deviation of log data	0.219876
Variance of log data	0.048346

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.826672
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	2.895198

Gamma Distribution Test

A-D Test Statistic	0.49949
A-D 5% Critical Value	0.697064
K-S Test Statistic	0.263019
K-S 5% Critical Value	0.33174
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	2.973242
Adjusted Gamma UCL	3.212757

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.858556
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	2.991274
95% Chebyshev (MVUE) UCL	3.362836
97.5% Chebyshev (MVUE) UCL	3.772044
99% Chebyshev (MVUE) UCL	4.575853

95% Non-parametric UCLs

CLT UCL	2.807897
Adj-CLT UCL (Adjusted for skewness)	2.957334
Mod-t UCL (Adjusted for skewness)	2.918507
Jackknife UCL	2.895198
Standard Bootstrap UCL	2.7813
Bootstrap-t UCL	3.440921
Hall's Bootstrap UCL	4.550557
Percentile Bootstrap UCL	2.79
BCA Bootstrap UCL	2.896667
95% Chebyshev (Mean, Sd) UCL	3.447936
97.5% Chebyshev (Mean, Sd) UCL	3.892725
99% Chebyshev (Mean, Sd) UCL	4.766427

Data File

Variable: CDONZn

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	891
Maximum	7465
Mean	3236.667
Median	2002
Standard Deviation	2566.94
Variance	6589179
Coefficient of Variation	0.793081
Skewness	1.13988

Gamma Statistics

k hat	2.099601
k star (bias corrected)	1.160911
Theta hat	1541.563
Theta star	2788.039
nu hat	25.19521
nu star	13.93094
Approx.Chi Square Value (.05)	6.522957
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	4.812055

Log-transformed Statistics

Minimum of log data	6.792344
Maximum of log data	8.917981
Mean of log data	7.825646
Standard Deviation of log data	0.783407
Variance of log data	0.613726

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.837718
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	5348.334

Gamma Distribution Test

A-D Test Statistic	0.417476
A-D 5% Critical Value	0.703923
K-S Test Statistic	0.283884
K-S 5% Critical Value	0.335703
Data follow gamma distribution at 5% significance level	
95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	6912.478
Adjusted Gamma UCL	9370.174

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.933432
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	
95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	11816.82
95% Chebyshev (MVUE) UCL	7642.694
97.5% Chebyshev (MVUE) UCL	9562.605
99% Chebyshev (MVUE) UCL	13333.9

95% Non-parametric UCLs

CLT UCL	4960.389
Adj-CLT UCL (Adjusted for skewness)	5481.469
Mod-t UCL (Adjusted for skewness)	5429.612
Jackknife UCL	5348.334
Standard Bootstrap UCL	4807.542
Bootstrap-t UCL	11240.1
Hall's Bootstrap UCL	21765.57
Percentile Bootstrap UCL	4912.167
BCA Bootstrap UCL	5142.333
95% Chebyshev (Mean, Sd) UCL	7804.569
97.5% Chebyshev (Mean, Sd) UCL	9781.104
99% Chebyshev (Mean, Sd) UCL	13663.63

Data File

Variable: CDONHg

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	0.137
Maximum	0.353
Mean	0.214167
Median	0.196
Standard Deviation	0.081465
Variance	0.006637
Coefficient of Variation	0.380382
Skewness	1.072791

Gamma Statistics

k hat	9.092311
k star (bias corrected)	4.657267
Theta hat	0.023555
Theta star	0.045985
nu hat	109.1077
nu star	55.8872
Approx. Chi Square Value (.05)	39.70312
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	34.83974

Log-transformed Statistics

Minimum of log data	-1.987774
Maximum of log data	-1.041287
Mean of log data	-1.596999
Standard Deviation of log data	0.360722
Variance of log data	0.130121

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.903401
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	0.281183
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Gamma Distribution Test

A-D Test Statistic	0.275541
A-D 5% Critical Value	0.698279
K-S Test Statistic	0.181115
K-S 5% Critical Value	0.332536

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	0.301467
Adjusted Gamma UCL	0.343549

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.94375
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	0.317407
95% Chebyshev (MVUE) UCL	0.350819
97.5% Chebyshev (MVUE) UCL	0.410152
99% Chebyshev (MVUE) UCL	0.526699

95% Non-parametric UCLs

CLT UCL	0.268871
Adj-CLT UCL (Adjusted for skewness)	0.284435
Mod-t UCL (Adjusted for skewness)	0.283611
Jackknife UCL	0.281183
Standard Bootstrap UCL	0.264038
Bootstrap-t UCL	0.34128
Hall's Bootstrap UCL	0.613313
Percentile Bootstrap UCL	0.267333
BCA Bootstrap UCL	0.276667
95% Chebyshev (Mean, Sd) UCL	0.359135
97.5% Chebyshev (Mean, Sd) UCL	0.421863
99% Chebyshev (Mean, Sd) UCL	0.54508

Data File

Variable: CDMASb

Raw Statistics

Number of Valid Samples	8
Number of Unique Samples	8
Minimum	14
Maximum	77.2
Mean	34.00563
Median	27.8725
Standard Deviation	22.74915
Variance	517.5239
Coefficient of Variation	0.668982
Skewness	0.965601

Gamma Statistics

k hat	2.715052
k star (bias corrected)	1.780241
Theta hat	12.52485
Theta star	19.1017
nu hat	43.44083
nu star	28.48385
Approx. Chi Square Value (.05)	17.30326
Adjusted Level of Significance	0.01946
Adjusted Chi Square Value	15.14138

Log-transformed Statistics

Minimum of log data	2.639057
Maximum of log data	4.346399
Mean of log data	3.331207
Standard Deviation of log data	0.667799
Variance of log data	0.445956

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.841991
Shapiro-Wilk 5% Critical Value	0.818
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	49.2438
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Gamma Distribution Test

A-D Test Statistic	0.644042
A-D 5% Critical Value	0.722182
K-S Test Statistic	0.304558
K-S 5% Critical Value	0.296631

Data follow approximate gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	55.97854
Adjusted Gamma UCL	63.97114

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.84923
Shapiro-Wilk 5% Critical Value	0.818

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	69.29273
95% Chebyshev (MVUE) UCL	69.24165
97.5% Chebyshev (MVUE) UCL	84.55076
99% Chebyshev (MVUE) UCL	114.6225

95% Non-parametric UCLs

CLT UCL	47.23525
Adj-CLT UCL (Adjusted for skewness)	50.1692
Mod-t UCL (Adjusted for skewness)	49.70143
Jackknife UCL	49.2438
Standard Bootstrap UCL	46.48352
Bootstrap-t UCL	55.86818
Hall's Bootstrap UCL	48.77152
Percentile Bootstrap UCL	46.22375
BCA Bootstrap UCL	47.82813
95% Chebyshev (Mean, Sd) UCL	69.06442
97.5% Chebyshev (Mean, Sd) UCL	84.23439
99% Chebyshev (Mean, Sd) UCL	114.0329

Data File

Variable: CDMA Cd

Raw Statistics

Number of Valid Samples	7
Number of Unique Samples	7
Minimum	16.64
Maximum	94
Mean	44.63143
Median	33.07
Standard Deviation	28.92381
Variance	836.5866
Coefficient of Variation	0.648059
Skewness	1.153163

Gamma Statistics

k hat	3.194152
k star (bias corrected)	1.920468
Theta hat	13.97286
Theta star	23.23987
nu hat	44.71813
nu star	26.88655
Approx. Chi Square Value (.05)	16.06189
Adjusted Level of Significance	0.01584
Adjusted Chi Square Value	13.60134

Log-transformed Statistics

Minimum of log data	2.811809
Maximum of log data	4.543295
Mean of log data	3.633811
Standard Deviation of log data	0.607865
Variance of log data	0.3695

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.82744
Shapiro-Wilk 5% Critical Value	0.803
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	65.8746

Gamma Distribution Test

A-D Test Statistic	0.478147
A-D 5% Critical Value	0.711709
K-S Test Statistic	0.280159
K-S 5% Critical Value	0.313557
Data follow gamma distribution at 5% significance level	
95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	74.71007
Adjusted Gamma UCL	88.22553

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.925671
Shapiro-Wilk 5% Critical Value	0.803
Data are lognormal at 5% significance level	
95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	88.7829
95% Chebyshev (MVUE) UCL	88.77287
97.5% Chebyshev (MVUE) UCL	108.0513
99% Chebyshev (MVUE) UCL	145.92

95% Non-parametric UCLs

CLT UCL	62.61325
Adj-CLT UCL (Adjusted for skewness)	67.70455
Mod-t UCL (Adjusted for skewness)	66.66874
Jackknife UCL	65.8746
Standard Bootstrap UCL	61.27938
Bootstrap-t UCL	115.1649
Hall's Bootstrap UCL	231.1271
Percentile Bootstrap UCL	61.86714
BCA Bootstrap UCL	64.82143
95% Chebyshev (Mean, Sd) UCL	92.28366
97.5% Chebyshev (Mean, Sd) UCL	112.9028
99% Chebyshev (Mean, Sd) UCL	153.4052

Data File

Variable: CDMACd

Raw Statistics

Number of Valid Samples	8
Number of Unique Samples	8
Minimum	16.64
Maximum	907.2
Mean	152.4525
Median	34.69
Standard Deviation	306.1375
Variance	93720.14
Coefficient of Variation	2.008084
Skewness	2.786043

Gamma Statistics

k hat	0.617728
k star (bias corrected)	0.469413
Theta hat	246.7957
Theta star	324.7726
nu hat	9.883641
nu star	7.510609
Approx. Chi Square Value (.05)	2.454358
Adjusted Level of Significance	0.01946
Adjusted Chi Square Value	1.787714

Log-transformed Statistics

Minimum of log data	2.811809
Maximum of log data	6.810363
Mean of log data	4.03088
Standard Deviation of log data	1.256194
Variance of log data	1.578024

RECOMMENDATION

Data are Non-parametric (0.05)

Use 99% Chebyshev (Mean, Sd) UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.493159
Shapiro-Wilk 5% Critical Value	0.818
Data not normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	357.514
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Gamma Distribution Test

A-D Test Statistic	1.246574
A-D 5% Critical Value	0.754252
K-S Test Statistic	0.339772
K-S 5% Critical Value	0.306668

Data do not follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	466.5216
Adjusted Gamma UCL	640.4889

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.811889
Shapiro-Wilk 5% Critical Value	0.818
Data not lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	902.1533
95% Chebyshev (MVUE) UCL	318.7121
97.5% Chebyshev (MVUE) UCL	410.1886
99% Chebyshev (MVUE) UCL	589.8763

95% Non-parametric UCLs

CLT UCL	330.4848
Adj-CLT UCL (Adjusted for skewness)	444.4034
Mod-t UCL (Adjusted for skewness)	375.283
Jackknife UCL	357.514
Standard Bootstrap UCL	321.7086
Bootstrap-t UCL	2066.87
Hall's Bootstrap UCL	1710.843
Percentile Bootstrap UCL	365.0788
BCA Bootstrap UCL	394.625
95% Chebyshev (Mean, Sd) UCL	624.242
97.5% Chebyshev (Mean, Sd) UCL	828.3857
99% Chebyshev (Mean, Sd) UCL	1229.386

Recommended UCL exceeds the maximum observation

Consider using 95% or 97.5% Chebyshev (Mean, Sd) UCL

Data File

Variable: CDMACu

Raw Statistics

Number of Valid Samples	8
Number of Unique Samples	8
Minimum	397.2
Maximum	1248
Mean	946.05
Median	941.15
Standard Deviation	272.0026
Variance	73985.4
Coefficient of Variation	0.287514
Skewness	-1.0412

Gamma Statistics

k hat	10.38922
k star (bias corrected)	6.576597
Theta hat	91.06071
Theta star	143.851
nu hat	166.2276
nu star	105.2256
Approx. Chi Square Value (.05)	82.54925
Adjusted Level of Significance	0.01946
Adjusted Chi Square Value	77.47915

Log-transformed Statistics

Minimum of log data	5.98444
Maximum of log data	7.129298
Mean of log data	6.803397
Standard Deviation of log data	0.363677
Variance of log data	0.132261

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.897117
Shapiro-Wilk 5% Critical Value	0.818

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	1128.247
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Gamma Distribution Test

A-D Test Statistic	0.591358
A-D 5% Critical Value	0.715019
K-S Test Statistic	0.274087
K-S 5% Critical Value	0.294264

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	1205.93
Adjusted Gamma UCL	1284.844

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.793136
Shapiro-Wilk 5% Critical Value	0.818

Data not lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	1295.864
95% Chebyshev (MVUE) UCL	1492.132
97.5% Chebyshev (MVUE) UCL	1724.887
99% Chebyshev (MVUE) UCL	2182.088

95% Non-parametric UCLs

CLT UCL	1104.231
Adj-CLT UCL (Adjusted for skewness)	1066.405
Mod-t UCL (Adjusted for skewness)	1122.347
Jackknife UCL	1128.247
Standard Bootstrap UCL	1094.169
Bootstrap-t UCL	1100.322
Hall's Bootstrap UCL	1088.384
Percentile Bootstrap UCL	1082.45
BCA Bootstrap UCL	1073.75
95% Chebyshev (Mean, Sd) UCL	1365.234
97.5% Chebyshev (Mean, Sd) UCL	1546.615
99% Chebyshev (Mean, Sd) UCL	1902.904

Data File

Variable: CDMAPb

Raw Statistics

Number of Valid Samples	8
Number of Unique Samples	8
Minimum	938.9
Maximum	3684
Mean	2152.738
Median	2017
Standard Deviation	955.0939
Variance	912204.3
Coefficient of Variation	0.443665
Skewness	0.614378

Gamma Statistics

k hat	5.799419
k star (bias corrected)	3.70797
Theta hat	371.1988
Theta star	580.5704
nu hat	92.7907
nu star	59.32752
Approx. Chi Square Value (.05)	42.61403
Adjusted Level of Significance	0.01946
Adjusted Chi Square Value	39.05737

Log-transformed Statistics

Minimum of log data	6.844709
Maximum of log data	8.211754
Mean of log data	7.58581
Standard Deviation of log data	0.457033
Variance of log data	0.208879

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.933991
Shapiro-Wilk 5% Critical Value	0.818
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)

Student's-t UCL	2792.492
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Gamma Distribution Test

A-D Test Statistic	0.208038
A-D 5% Critical Value	0.718414
K-S Test Statistic	0.151866
K-S 5% Critical Value	0.295087

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	2997.055
Adjusted Gamma UCL	3269.974

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.970413
Shapiro-Wilk 5% Critical Value	0.818
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	3258.929
95% Chebyshev (MVUE) UCL	3688.682
97.5% Chebyshev (MVUE) UCL	4351.616
99% Chebyshev (MVUE) UCL	5653.823

95% Non-parametric UCLs

CLT UCL	2708.166
Adj-CLT UCL (Adjusted for skewness)	2786.54
Mod-t UCL (Adjusted for skewness)	2804.717
Jackknife UCL	2792.492
Standard Bootstrap UCL	2674.013
Bootstrap-t UCL	3097.493
Hall's Bootstrap UCL	3366.273
Percentile Bootstrap UCL	2697
BCA Bootstrap UCL	2745.375
95% Chebyshev (Mean, Sd) UCL	3624.636
97.5% Chebyshev (Mean, Sd) UCL	4261.528
99% Chebyshev (Mean, Sd) UCL	5512.578

Data File

Variable: CDMASe

Raw Statistics  
Number of Valid Samples 8  
Number of Unique Samples 8  
Minimum 2.08  
Maximum 10.78  
Mean 5.54375  
Median 4.72  
Standard Deviation 3.239246  
Variance 10.49271  
Coefficient of Variation 0.584306  
Skewness 0.713147

Gamma Statistics  
k hat 3.403808  
k star (bias corrected) 2.210713  
Theta hat 1.628691  
Theta star 2.507675  
nu hat 54.46093  
nu star 35.37141  
Approx. Chi Square Value (.05) 22.76102  
Adjusted Level of Significance 0.01946  
Adjusted Chi Square Value 20.24029

Log-transformed Statistics  
Minimum of log data 0.732368  
Maximum of log data 2.377693  
Mean of log data 1.558644  
Standard Deviation of log data 0.599934  
Variance of log data 0.359921

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test  
Shapiro-Wilk Test Statistic 0.905049  
Shapiro-Wilk 5% Critical Value 0.818  
Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)  
Student's-t UCL 7.713509

Gamma Distribution Test  
A-D Test Statistic 0.253221  
A-D 5% Critical Value 0.720299  
K-S Test Statistic 0.159843  
K-S 5% Critical Value 0.295908

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)  
Approximate Gamma UCL 8.61518  
Adjusted Gamma UCL 9.688113

Lognormal Distribution Test  
Shapiro-Wilk Test Statistic 0.954516  
Shapiro-Wilk 5% Critical Value 0.818  
Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)  
95% H-UCL 10.19232  
95% Chebyshev (MVUE) UCL 10.7454  
97.5% Chebyshev (MVUE) UCL 12.99428  
99% Chebyshev (MVUE) UCL 17.41176

95% Non-parametric UCLs  
CLT UCL 7.427513  
Adj-CLT UCL (Adjusted for skewness) 7.736054  
Mod-t UCL (Adjusted for skewness) 7.761635  
Jackknife UCL 7.713509  
Standard Bootstrap UCL 7.30462  
Bootstrap-t UCL 8.951008  
Hall's Bootstrap UCL 8.349245  
Percentile Bootstrap UCL 7.26875  
BCA Bootstrap UCL 7.42625  
95% Chebyshev (Mean, Sd) UCL 10.53576  
97.5% Chebyshev (Mean, Sd) UCL 12.69581  
99% Chebyshev (Mean, Sd) UCL 16.93881

Data File

Variable: CDMAAg

Raw Statistics

Number of Valid Samples	8
Number of Unique Samples	8
Minimum	7.1
Maximum	34.93
Mean	16.28375
Median	14.2
Standard Deviation	9.125938
Variance	83.28274
Coefficient of Variation	0.560432
Skewness	1.285073

Gamma Statistics

k hat	4.11253
k star (bias corrected)	2.653665
Theta hat	3.959546
Theta star	6.136326
nu hat	65.80048
nu star	42.45863
Approx. Chi Square Value (.05)	28.51772
Adjusted Level of Significance	0.01946
Adjusted Chi Square Value	25.66187

Log-transformed Statistics

Minimum of log data	1.960095
Maximum of log data	3.553346
Mean of log data	2.663689
Standard Deviation of log data	0.532109
Variance of log data	0.28314

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.888846
Shapiro-Wilk 5% Critical Value	0.818
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	22.39662

Gamma Distribution Test

A-D Test Statistic	0.227678
A-D 5% Critical Value	0.718626
K-S Test Statistic	0.139945
K-S 5% Critical Value	0.29532
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	24.24408
Adjusted Gamma UCL	26.94214

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.970175
Shapiro-Wilk 5% Critical Value	0.818
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	27.01096
95% Chebyshev (MVUE) UCL	29.65787
97.5% Chebyshev (MVUE) UCL	35.47482
99% Chebyshev (MVUE) UCL	46.90108

95% Non-parametric UCLs

CLT UCL	21.59088
Adj-CLT UCL (Adjusted for skewness)	23.15726
Mod-t UCL (Adjusted for skewness)	22.64094
Jackknife UCL	22.39662
Standard Bootstrap UCL	21.1881
Bootstrap-t UCL	25.48902
Hall's Bootstrap UCL	27.69191
Percentile Bootstrap UCL	21.69
BCA Bootstrap UCL	22.7375
95% Chebyshev (Mean, Sd) UCL	30.34776
97.5% Chebyshev (Mean, Sd) UCL	36.43328
99% Chebyshev (Mean, Sd) UCL	48.38708

Data File

Variable: CDMATI

Raw Statistics		Normal Distribution Test	
Number of Valid Samples	8	Shapiro-Wilk Test Statistic	0.802051
Number of Unique Samples	7	Shapiro-Wilk 5% Critical Value	0.818
Minimum	1.74	Data not normal at 5% significance level	
Maximum	6.67	95% UCL (Assuming Normal Distribution)	
Mean	3.64375	Student's-t UCL	5.002559
Median	2.53	Gamma Distribution Test	
Standard Deviation	2.028574	A-D Test Statistic	0.734073
Variance	4.115113	A-D 5% Critical Value	0.718581
Coefficient of Variation	0.556727	K-S Test Statistic	0.315478
Skewness	0.765777	K-S 5% Critical Value	0.295328
Gamma Statistics		Data do not follow gamma distribution at 5% significance level	
k hat	4.022475	95% UCLs (Assuming Gamma Distribution)	
k star (bias corrected)	2.59738	Approximate Gamma UCL	5.451013
Theta hat	0.905848	Adjusted Gamma UCL	6.065635
Theta star	1.402856	Lognormal Distribution Test	
nu hat	64.3596	Shapiro-Wilk Test Statistic	0.847622
nu star	41.55809	Shapiro-Wilk 5% Critical Value	0.818
Approx. Chi Square Value (.05)	27.77966	Data are lognormal at 5% significance level	
Adjusted Level of Significance	0.01946	95% UCLs (Assuming Lognormal Distribution)	
Adjusted Chi Square Value	24.96479	95% H-UCL	6.053351
Log-transformed Statistics		95% Chebyshev (MVUE) UCL	6.638291
Minimum of log data	0.553885	97.5% Chebyshev (MVUE) UCL	7.943608
Maximum of log data	1.89762	99% Chebyshev (MVUE) UCL	10.50765
Mean of log data	1.163592	95% Non-parametric UCLs	
Standard Deviation of log data	0.534552	CLT UCL	4.823454
Variance of log data	0.285746	Adj-CLT UCL (Adjusted for skewness)	5.030938
RECOMMENDATION		Mod-t UCL (Adjusted for skewness)	5.034922
Data are lognormal (0.05)		Jackknife UCL	5.002559
Use H-UCL		Standard Bootstrap UCL	4.755044
		Bootstrap-t UCL	5.665406
		Hall's Bootstrap UCL	4.530727
		Percentile Bootstrap UCL	4.79
		BCA Bootstrap UCL	4.8925
		95% Chebyshev (Mean, Sd) UCL	6.769993
		97.5% Chebyshev (Mean, Sd) UCL	8.12272
		99% Chebyshev (Mean, Sd) UCL	10.77989

Data File

Variable: CDMAZn

Raw Statistics	
Number of Valid Samples	8
Number of Unique Samples	8
Minimum	1760
Maximum	3906
Mean	2627.688
Median	2628
Standard Deviation	678.2198
Variance	459982.1
Coefficient of Variation	0.258105
Skewness	0.6992

Gamma Statistics	
k hat	17.7021
k star (bias corrected)	11.14715
Theta hat	148.4393
Theta star	235.7274
nu hat	283.2336
nu star	178.3543
Approx. Chi Square Value (.05)	148.4603
Adjusted Level of Significance	0.01946
Adjusted Chi Square Value	141.553

Log-transformed Statistics	
Minimum of log data	7.473069
Maximum of log data	8.270269
Mean of log data	7.845348
Standard Deviation of log data	0.254858
Variance of log data	0.064953

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.956709
Shapiro-Wilk 5% Critical Value	0.818
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)	
Student's-t UCL	3081.983

Gamma Distribution Test	
A-D Test Statistic	0.181006
A-D 5% Critical Value	0.715948
K-S Test Statistic	0.125268
K-S 5% Critical Value	0.293957

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	3156.8
Adjusted Gamma UCL	3310.841

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.978685
Shapiro-Wilk 5% Critical Value	0.818
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	3204.266
95% Chebyshev (MVUE) UCL	3662.172
97.5% Chebyshev (MVUE) UCL	4110.003
99% Chebyshev (MVUE) UCL	4989.68

95% Non-parametric UCLs	
CLT UCL	3022.102
Adj-CLT UCL (Adjusted for skewness)	3085.44
Mod-t UCL (Adjusted for skewness)	3091.862
Jackknife UCL	3081.983
Standard Bootstrap UCL	2998.933
Bootstrap-t UCL	3166.831
Hall's Bootstrap UCL	3260.35
Percentile Bootstrap UCL	3035.25
BCA Bootstrap UCL	3072.313
95% Chebyshev (Mean, Sd) UCL	3672.894
97.5% Chebyshev (Mean, Sd) UCL	4125.156
99% Chebyshev (Mean, Sd) UCL	5013.537

Data File

Variable: CDMAHg

Raw Statistics  
Number of Valid Samples 8  
Number of Unique Samples 8  
Minimum 0.116  
Maximum 0.619  
Mean 0.245438  
Median 0.2055  
Standard Deviation 0.158695  
Variance 0.025184  
Coefficient of Variation 0.646578  
Skewness 2.308977

Gamma Statistics  
k hat 4.030158  
k star (bias corrected) 2.602182  
Theta hat 0.0609  
Theta star 0.09432  
nu hat 64.48253  
nu star 41.63492  
Approx. Chi Square Value (.05) 27.84255  
Adjusted Level of Significance 0.01946  
Adjusted Chi Square Value 25.02417

Log-transformed Statistics  
Minimum of log data -2.154165  
Maximum of log data -0.47965  
Mean of log data -1.533878  
Standard Deviation of log data 0.503357  
Variance of log data 0.253368

RECOMMENDATION  
Data follow gamma distribution (0.05)  
Use Approximate Gamma UCL

Normal Distribution Test  
Shapiro-Wilk Test Statistic 0.712746  
Shapiro-Wilk 5% Critical Value 0.818  
Data not normal at 5% significance level  
95% UCL (Assuming Normal Distribution)  
Student's-t UCL 0.351737

Gamma Distribution Test  
A-D Test Statistic 0.620634  
A-D 5% Critical Value 0.718585  
K-S Test Statistic 0.270635  
K-S 5% Critical Value 0.295327

Data follow gamma distribution  
at 5% significance level  
95% UCLs (Assuming Gamma Distribution)  
Approximate Gamma UCL 0.36702  
Adjusted Gamma UCL 0.408356

Lognormal Distribution Test  
Shapiro-Wilk Test Statistic 0.897627  
Shapiro-Wilk 5% Critical Value 0.818  
Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)  
95% H-UCL 0.385725  
95% Chebyshev (MVUE) UCL 0.42924  
97.5% Chebyshev (MVUE) UCL 0.510837  
99% Chebyshev (MVUE) UCL 0.671119

95% Non-parametric UCLs  
CLT UCL 0.337725  
Adj-CLT UCL (Adjusted for skewness) 0.386666  
Mod-t UCL (Adjusted for skewness) 0.35937  
Jackknife UCL 0.351737  
Standard Bootstrap UCL 0.330897  
Bootstrap-t UCL 0.534944  
Hall's Bootstrap UCL 0.812165  
Percentile Bootstrap UCL 0.348438  
BCA Bootstrap UCL 0.3665  
95% Chebyshev (Mean, Sd) UCL 0.490002  
97.5% Chebyshev (Mean, Sd) UCL 0.595826  
99% Chebyshev (Mean, Sd) UCL 0.803695

Data File

Variable: CDCHAs

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	350.8
Maximum	1069
Mean	535.85
Median	412.25
Standard Deviation	274.0736
Variance	75116.32
Coefficient of Variation	0.511474
Skewness	2.009217

Gamma Statistics

k hat	6.138371
k star (bias corrected)	3.180297
Theta hat	87.29514
Theta star	168.4906
nu hat	73.66046
nu star	38.16356
Approx. Chi Square Value (.05)	25.0142
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	21.25272

Log-transformed Statistics

Minimum of log data	5.860216
Maximum of log data	6.974479
Mean of log data	6.200194
Standard Deviation of log data	0.418623
Variance of log data	0.175246

RECOMMENDATION

Assuming gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.724226
Shapiro-Wilk 5% Critical Value	0.788
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	761.3139

Gamma Distribution Test

A-D Test Statistic	0.713135
A-D 5% Critical Value	0.698114
K-S Test Statistic	0.331878
K-S 5% Critical Value	0.332719
Data follow approximate gamma distribution at 5% significance level	
95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	817.5336
Adjusted Gamma UCL	962.227

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.809159
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	
95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	860.413
95% Chebyshev (MVUE) UCL	924.1722
97.5% Chebyshev (MVUE) UCL	1094.825
99% Chebyshev (MVUE) UCL	1430.039

95% Non-parametric UCLs

CLT UCL	719.8928
Adj-CLT UCL (Adjusted for skewness)	817.9598
Mod-t UCL (Adjusted for skewness)	776.6104
Jackknife UCL	761.3139
Standard Bootstrap UCL	705.0988
Bootstrap-t UCL	1945.08
Hall's Bootstrap UCL	2048.536
Percentile Bootstrap UCL	727.1833
BCA Bootstrap UCL	789.1
95% Chebyshev (Mean, Sd) UCL	1023.567
97.5% Chebyshev (Mean, Sd) UCL	1234.603
99% Chebyshev (Mean, Sd) UCL	1649.142

Data File

Variable: CDCHSb

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	9.24
Maximum	62.3
Mean	37.60833
Median	36.735
Standard Deviation	21.6504
Variance	468.7399
Coefficient of Variation	0.575681
Skewness	-0.013115

Gamma Statistics

k hat	2.797184
k star (bias corrected)	1.509703
Theta hat	13.44507
Theta star	24.91108
nu hat	33.56621
nu star	18.11644
Approx. Chi Square Value (.05)	9.473683
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	7.328868

Log-transformed Statistics

Minimum of log data	2.223542
Maximum of log data	4.131961
Mean of log data	3.437953
Standard Deviation of log data	0.737876
Variance of log data	0.54446

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.921318
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	55.41882

Gamma Distribution Test

A-D Test Statistic	0.306204
A-D 5% Critical Value	0.701914
K-S Test Statistic	0.195317
K-S 5% Critical Value	0.33481
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	71.91808
Adjusted Gamma UCL	92.96511

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.902578
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	125.6302
95% Chebyshev (MVUE) UCL	89.40823
97.5% Chebyshev (MVUE) UCL	111.3149
99% Chebyshev (MVUE) UCL	154.3463

95% Non-parametric UCLs

CLT UCL	52.14677
Adj-CLT UCL (Adjusted for skewness)	52.0962
Mod-t UCL (Adjusted for skewness)	55.41093
Jackknife UCL	55.41882
Standard Bootstrap UCL	50.60721
Bootstrap-t UCL	56.63185
Hall's Bootstrap UCL	56.86375
Percentile Bootstrap UCL	51.00167
BCA Bootstrap UCL	49.68
95% Chebyshev (Mean, Sd) UCL	76.1355
97.5% Chebyshev (Mean, Sd) UCL	92.80624
99% Chebyshev (Mean, Sd) UCL	125.5527

Data File

Variable: CDCHCd

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	24.5
Maximum	77.3
Mean	39.385
Median	34.55
Standard Deviation	19.04806
Variance	362.8286
Coefficient of Variation	0.483637
Skewness	2.170959

Gamma Statistics

k hat	6.935743
k star (bias corrected)	3.578983
Theta hat	5.678555
Theta star	11.00452
nu hat	83.22892
nu star	42.94779
Approx. Chi Square Value (.05)	28.91935
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	24.83935

Log-transformed Statistics

Minimum of log data	3.198673
Maximum of log data	4.347694
Mean of log data	3.599566
Standard Deviation of log data	0.392858
Variance of log data	0.154338

RECOMMENDATION

Data are lognormal (0.05)

- Use Student's-t UCL
- Use Modified-t UCL
- Use H-UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.70525
Shapiro-Wilk 5% Critical Value	0.788
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	55.0547

Gamma Distribution Test

A-D Test Statistic	0.756119
A-D 5% Critical Value	0.698158
K-S Test Statistic	0.38538
K-S 5% Critical Value	0.33267

Data do not follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	58.49022
Adjusted Gamma UCL	68.09755

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.817466
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	60.7842
95% Chebyshev (MVUE) UCL	66.23241
97.5% Chebyshev (MVUE) UCL	78.02042
99% Chebyshev (MVUE) UCL	101.1757

95% Non-parametric UCLs

CLT UCL	52.17594
Adj-CLT UCL (Adjusted for skewness)	59.54024
Mod-t UCL (Adjusted for skewness)	56.20338
Jackknife UCL	55.0547
Standard Bootstrap UCL	51.42106
Bootstrap-t UCL	85.52286
Hall's Bootstrap UCL	120.8963
Percentile Bootstrap UCL	53.93333
BCA Bootstrap UCL	55.76667
95% Chebyshev (Mean, Sd) UCL	73.28127
97.5% Chebyshev (Mean, Sd) UCL	87.94822
99% Chebyshev (Mean, Sd) UCL	116.7586

Data File

Variable: CDCHCu

Raw Statistics	
Number of Valid Samples	6
Number of Unique Samples	6
Minimum	467.7
Maximum	1470
Mean	988.35
Median	875.45
Standard Deviation	391.5011
Variance	153273.1
Coefficient of Variation	0.396116
Skewness	0.23594

Gamma Statistics	
k hat	7.167608
k star (bias corrected)	3.694915
Theta hat	137.8912
Theta star	267.4892
nu hat	86.0113
nu star	44.33898
Approx. Chi Square Value (.05)	30.06431
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	25.89498

Log-transformed Statistics	
Minimum of log data	6.147827
Maximum of log data	7.293018
Mean of log data	6.82466
Standard Deviation of log data	0.425677
Variance of log data	0.181201

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.900451
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	1310.415

Gamma Distribution Test	
A-D Test Statistic	0.362302
A-D 5% Critical Value	0.698171
K-S Test Statistic	0.214528
K-S 5% Critical Value	0.332656

Data follow gamma distribution at 5% significance level	
95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	1457.623
Adjusted Gamma UCL	1692.314

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.913081
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	1629.207
95% Chebyshev (MVUE) UCL	1742.264
97.5% Chebyshev (MVUE) UCL	2067.057
99% Chebyshev (MVUE) UCL	2705.052

95% Non-parametric UCLs	
CLT UCL	1251.246
Adj-CLT UCL (Adjusted for skewness)	1267.696
Mod-t UCL (Adjusted for skewness)	1312.98
Jackknife UCL	1310.415
Standard Bootstrap UCL	1228.908
Bootstrap-t UCL	1517.523
Hall's Bootstrap UCL	1745.136
Percentile Bootstrap UCL	1244.117
BCA Bootstrap UCL	1259.483
95% Chebyshev (Mean, Sd) UCL	1685.031
97.5% Chebyshev (Mean, Sd) UCL	1986.486
99% Chebyshev (Mean, Sd) UCL	2578.635

Data File

Variable: CDCHPb

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	1095
Maximum	4707
Mean	2371.333
Median	1921
Standard Deviation	1347.783
Variance	1816520
Coefficient of Variation	0.568365
Skewness	1.234669

Gamma Statistics

k hat	4.213975
k star (bias corrected)	2.218098
Theta hat	562.7308
Theta star	1069.084
nu hat	50.5677
nu star	26.61718
Approx. Chi Square Value (.05)	15.8536
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	12.9524

Log-transformed Statistics

Minimum of log data	6.99851
Maximum of log data	8.456806
Mean of log data	7.647888
Standard Deviation of log data	0.534375
Variance of log data	0.285557

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.886218
Shapiro-Wilk 5% Critical Value	0.788

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	3480.074
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Gamma Distribution Test

A-D Test Statistic	0.267788
A-D 5% Critical Value	0.699567
K-S Test Statistic	0.224253
K-S 5% Critical Value	0.33338

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	3981.318
Adjusted Gamma UCL	4873.089

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.967862
Shapiro-Wilk 5% Critical Value	0.788

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	4716.984
95% Chebyshev (MVUE) UCL	4593.381
97.5% Chebyshev (MVUE) UCL	5561.298
99% Chebyshev (MVUE) UCL	7462.584

95% Non-parametric UCLs

CLT UCL	3276.382
Adj-CLT UCL (Adjusted for skewness)	3572.728
Mod-t UCL (Adjusted for skewness)	3526.298
Jackknife UCL	3480.074
Standard Bootstrap UCL	3212.071
Bootstrap-t UCL	5341.688
Hall's Bootstrap UCL	9645.054
Percentile Bootstrap UCL	3267.333
BCA Bootstrap UCL	3456
95% Chebyshev (Mean, Sd) UCL	4769.732
97.5% Chebyshev (Mean, Sd) UCL	5807.52
99% Chebyshev (Mean, Sd) UCL	7846.056

Data File

Variable: CDCHSe

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	2.07
Maximum	7.76
Mean	4.476667
Median	4.36
Standard Deviation	2.063344
Variance	4.257387
Coefficient of Variation	0.460911
Skewness	0.609584

Gamma Statistics

k hat	5.569733
k star (bias corrected)	2.895977
Theta hat	0.803749
Theta star	1.545822
nu hat	66.83679
nu star	34.75173
Approx. Chi Square Value (.05)	22.26384
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	18.74157

Log-transformed Statistics

Minimum of log data	0.727549
Maximum of log data	2.048982
Mean of log data	1.40643
Standard Deviation of log data	0.478965
Variance of log data	0.229407

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.955163
Shapiro-Wilk 5% Critical Value	0.788

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	6.174056
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Gamma Distribution Test

A-D Test Statistic	0.201693
A-D 5% Critical Value	0.698082
K-S Test Statistic	0.185632
K-S 5% Critical Value	0.332755

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	6.98765
Adjusted Gamma UCL	8.300899

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.977248
Shapiro-Wilk 5% Critical Value	0.788

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	8.079396
95% Chebyshev (MVUE) UCL	8.303354
97.5% Chebyshev (MVUE) UCL	9.955542
99% Chebyshev (MVUE) UCL	13.20095

95% Non-parametric UCLs

CLT UCL	5.86222
Adj-CLT UCL (Adjusted for skewness)	6.086213
Mod-t UCL (Adjusted for skewness)	6.208994
Jackknife UCL	6.174056
Standard Bootstrap UCL	5.756141
Bootstrap-t UCL	6.669863
Hall's Bootstrap UCL	6.031116
Percentile Bootstrap UCL	5.803333
BCA Bootstrap UCL	5.846667
95% Chebyshev (Mean, Sd) UCL	8.148413
97.5% Chebyshev (Mean, Sd) UCL	9.737181
99% Chebyshev (Mean, Sd) UCL	12.85801

Data File

Variable: CDCHAg

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	3.26
Maximum	28.17
Mean	17.535
Median	17.25
Standard Deviation	8.600351
Variance	73.96603
Coefficient of Variation	0.490468
Skewness	-0.679586

Gamma Statistics

k hat	2.948271
k star (bias corrected)	1.585247
Theta hat	5.947554
Theta star	11.06137
nu hat	35.37925
nu star	19.02296
Approx. Chi Square Value (.05)	10.13271
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	7.900229

Log-transformed Statistics

Minimum of log data	1.181727
Maximum of log data	3.338258
Mean of log data	2.685126
Standard Deviation of log data	0.774586
Variance of log data	0.599983

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.953062
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	24.60999

Gamma Distribution Test

A-D Test Statistic	0.532184
A-D 5% Critical Value	0.701479
K-S Test Statistic	0.316129
K-S 5% Critical Value	0.334616
Data follow gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	32.91988
Adjusted Gamma UCL	42.22252

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.781562
Shapiro-Wilk 5% Critical Value	0.788
Data not lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	67.06928
95% Chebyshev (MVUE) UCL	44.22267
97.5% Chebyshev (MVUE) UCL	55.28031
99% Chebyshev (MVUE) UCL	77.00089

95% Non-parametric UCLs

CLT UCL	23.31021
Adj-CLT UCL (Adjusted for skewness)	22.26936
Mod-t UCL (Adjusted for skewness)	24.44764
Jackknife UCL	24.60999
Standard Bootstrap UCL	22.72988
Bootstrap-t UCL	23.48425
Hall's Bootstrap UCL	23.70486
Percentile Bootstrap UCL	22.58167
BCA Bootstrap UCL	22.17667
95% Chebyshev (Mean, Sd) UCL	32.83944
97.5% Chebyshev (Mean, Sd) UCL	39.46168
99% Chebyshev (Mean, Sd) UCL	52.46979

Data File

Variable: CDCHTI

Raw Statistics	
Number of Valid Samples	6
Number of Unique Samples	6
Minimum	1.73
Maximum	14.16
Mean	5.731667
Median	4.445
Standard Deviation	4.474217
Variance	20.01862
Coefficient of Variation	0.780614
Skewness	1.686865

Gamma Statistics	
k hat	2.37958
k star (bias corrected)	1.300901
Theta hat	2.408688
Theta star	4.405921
nu hat	28.55496
nu star	15.61081
Approx. Chi Square Value (.05)	7.687098
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	5.795747

Log-transformed Statistics	
Minimum of log data	0.548121
Maximum of log data	2.650421
Mean of log data	1.521409
Standard Deviation of log data	0.724334
Variance of log data	0.524659

RECOMMENDATION  
Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test	
Shapiro-Wilk Test Statistic	0.829772
Shapiro-Wilk 5% Critical Value	0.788
Data are normal at 5% significance level	

95% UCL (Assuming Normal Distribution)	
Student's-t UCL	9.412336

Gamma Distribution Test	
A-D Test Statistic	0.291879
A-D 5% Critical Value	0.703117
K-S Test Statistic	0.211495
K-S 5% Critical Value	0.335344

Data follow gamma distribution  
at 5% significance level

95% UCLs (Assuming Gamma Distribution)	
Approximate Gamma UCL	11.63976
Adjusted Gamma UCL	15.43821

Lognormal Distribution Test	
Shapiro-Wilk Test Statistic	0.972723
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)	
95% H-UCL	17.67575
95% Chebyshev (MVUE) UCL	12.91851
97.5% Chebyshev (MVUE) UCL	16.05884
99% Chebyshev (MVUE) UCL	22.22742

95% Non-parametric UCLs	
CLT UCL	8.736142
Adj-CLT UCL (Adjusted for skewness)	10.08023
Mod-t UCL (Adjusted for skewness)	9.621986
Jackknife UCL	9.412336
Standard Bootstrap UCL	8.491272
Bootstrap-t UCL	12.22123
Hall's Bootstrap UCL	20.45265
Percentile Bootstrap UCL	8.445
BCA Bootstrap UCL	9.475
95% Chebyshev (Mean, Sd) UCL	13.69359
97.5% Chebyshev (Mean, Sd) UCL	17.13873
99% Chebyshev (Mean, Sd) UCL	23.90602

Data File

Variable: CDCHZn

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	1604
Maximum	7846
Mean	4807.667
Median	4788
Standard Deviation	2620.838
Variance	6868789
Coefficient of Variation	0.545137
Skewness	-0.004692

Gamma Statistics

k hat	3.34422
k star (bias corrected)	1.783221
Theta hat	1437.605
Theta star	2696.057
nu hat	40.13064
nu star	21.39865
Approx. Chi Square Value (.05)	11.88698
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	9.43359

Log-transformed Statistics

Minimum of log data	7.380256
Maximum of log data	8.967759
Mean of log data	8.321068
Standard Deviation of log data	0.65282
Variance of log data	0.426174

RECOMMENDATION

Data are normal (0.05)

Use Student's-t UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.897971
Shapiro-Wilk 5% Critical Value	0.788

Data are normal at 5% significance level

95% UCL (Assuming Normal Distribution)

Student's-t UCL	6963.672
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Gamma Distribution Test

A-D Test Statistic	0.391762
A-D 5% Critical Value	0.700865
K-S Test Statistic	0.22663
K-S 5% Critical Value	0.334202

Data follow gamma distribution at 5% significance level

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	8654.647
Adjusted Gamma UCL	10905.46

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.885844
Shapiro-Wilk 5% Critical Value	0.788

Data are lognormal at 5% significance level

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	12706.09
95% Chebyshev (MVUE) UCL	10543.6
97.5% Chebyshev (MVUE) UCL	12991.16
99% Chebyshev (MVUE) UCL	17798.92

95% Non-parametric UCLs

CLT UCL	6567.582
Adj-CLT UCL (Adjusted for skewness)	6565.392
Mod-t UCL (Adjusted for skewness)	6963.331
Jackknife UCL	6963.672
Standard Bootstrap UCL	6406.188
Bootstrap-t UCL	7195.771
Hall's Bootstrap UCL	6978.949
Percentile Bootstrap UCL	6314.333
BCA Bootstrap UCL	6314.333
95% Chebyshev (Mean, Sd) UCL	9471.481
97.5% Chebyshev (Mean, Sd) UCL	11489.52
99% Chebyshev (Mean, Sd) UCL	15453.56

Data File

Variable: CDCHHg

Raw Statistics

Number of Valid Samples	6
Number of Unique Samples	6
Minimum	0.079
Maximum	1.471
Mean	0.364833
Median	0.1325
Standard Deviation	0.545884
Variance	0.297989
Coefficient of Variation	1.496256
Skewness	2.372831

Gamma Statistics

k hat	0.939283
k star (bias corrected)	0.580753
Theta hat	0.388417
Theta star	0.628208
nu hat	11.2714
nu star	6.969033
Approx. Chi Square Value (.05)	2.152975
Adjusted Level of Significance	0.01222
Adjusted Chi Square Value	1.318646

Log-transformed Statistics

Minimum of log data	-2.538307
Maximum of log data	0.385942
Mean of log data	-1.627456
Standard Deviation of log data	1.067284
Variance of log data	1.139096

RECOMMENDATION

Assuming gamma distribution (0.05)

Use Approximate Gamma UCL

Normal Distribution Test

Shapiro-Wilk Test Statistic	0.59663
Shapiro-Wilk 5% Critical Value	0.788
Data not normal at 5% significance level	
95% UCL (Assuming Normal Distribution)	
Student's-t UCL	0.813899

Gamma Distribution Test

A-D Test Statistic	0.867946
A-D 5% Critical Value	0.71653
K-S Test Statistic	0.325697
K-S 5% Critical Value	0.341481
Data follow approximate gamma distribution at 5% significance level	

95% UCLs (Assuming Gamma Distribution)

Approximate Gamma UCL	1.180941
Adjusted Gamma UCL	1.928142

Lognormal Distribution Test

Shapiro-Wilk Test Statistic	0.817216
Shapiro-Wilk 5% Critical Value	0.788
Data are lognormal at 5% significance level	

95% UCLs (Assuming Lognormal Distribution)

95% H-UCL	3.035296
95% Chebyshev (MVUE) UCL	0.877816
97.5% Chebyshev (MVUE) UCL	1.12484
99% Chebyshev (MVUE) UCL	1.61007

95% Non-parametric UCLs

CLT UCL	0.731399
Adj-CLT UCL (Adjusted for skewness)	0.962072
Mod-t UCL (Adjusted for skewness)	0.84988
Jackknife UCL	0.813899
Standard Bootstrap UCL	0.698364
Bootstrap-t UCL	5.783563
Hall's Bootstrap UCL	3.454033
Percentile Bootstrap UCL	0.792833
BCA Bootstrap UCL	0.849
95% Chebyshev (Mean, Sd) UCL	1.336241
97.5% Chebyshev (Mean, Sd) UCL	1.75657
99% Chebyshev (Mean, Sd) UCL	2.582225