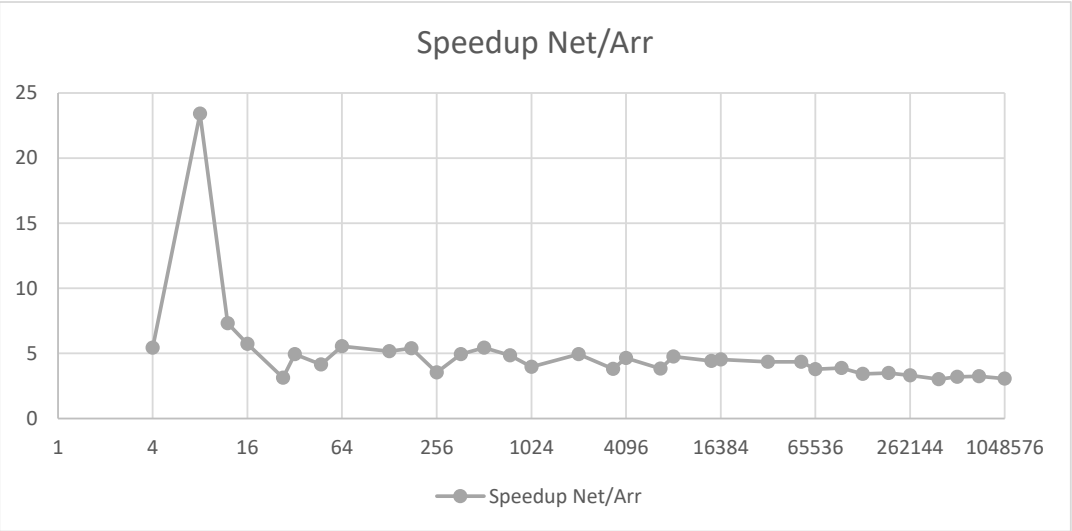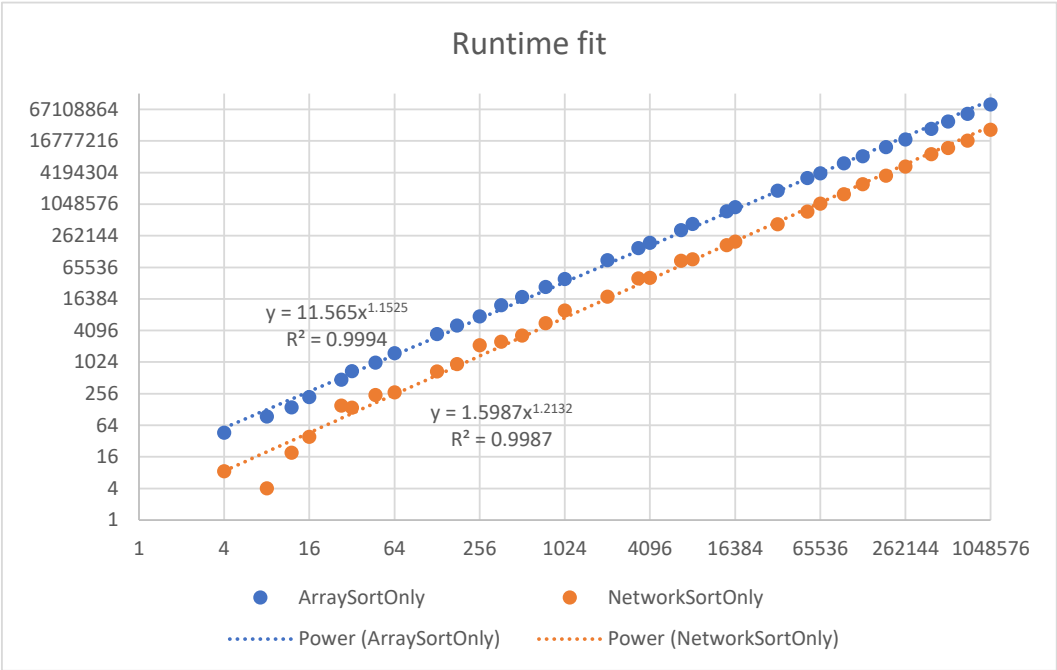| Parameter	Value
BenchmarkDotNetCaption	BenchmarkDotNet
BenchmarkDotNetVersion	0.13.1
OsVersion	Windows 10.0.22000
ProcessorName	Intel Core i7-8650U CPU 1.90GHz (Kaby Lake R)
PhysicalProcessorCount	1
PhysicalCoreCount	4
LogicalCoreCount	8
RuntimeVersion	.NET Core 3.1.21 (CoreCLR 4.700.21.51404, CoreFX 4.700.21.51508)
Architecture	X64
HasAttachedDebugger	FALSE
HasRyuJit	TRUE
Configuration	RELEASE
DotNetSdkVersion	5.0.303
ChronometerFrequency	[Table]
HardwareTimerKind	Unknown

Parameter	Value
BenchmarkDotNetCaption	BenchmarkDotNet
BenchmarkDotNetVersion	0.13.1

IntBenchmark

N	ArraySortOnly	NetworkSortOnly	Speedup Net/Arr
4	46.5602746	8.55360694	5.443349797
8	94.38901314	4.03272576	23.40576046
12	140.7234515	19.25556575	7.308196155
16	221.5400415	38.57015644	5.743820145
27	476.3413109	152.5435366	3.122658105
32	687.568293	139.2724781	4.936856888
47	1010.13183	242.8093084	4.16018577
64	1509.617916	272.1847653	5.546298355
128	3518.51257	680.4409137	5.170930348
177	5108.183013	945.7635625	5.40112055
256	7615.98966	2148.212171	3.545268834
364	12481.20745	2528.218119	4.936760543
512	17810.04527	3279.074105	5.431425062
748	27608.06003	5700.915539	4.842741458
1024	39204.33385	9863.046214	3.974870745
2048	89523.8503	18121.065	4.940319473
3389	153672.2225	40323.74203	3.810961354
4096	192227.1485	41392.70256	4.643986418
6793	336424.0067	87870.95738	3.828614331
8192	442995.6986	92970.30481	4.764916061
14289	772210.6751	174442.9207	4.426724065
16384	917559.7765	202730.4092	4.526009591
32768	1901066.196	437158.9466	4.348684181
53151	3306483.178	759868.9257	4.351386227
65536	4080930.517	1078806.448	3.782819916
96317	6306604.028	1628825.656	3.871871741
131072	8611666.257	2515913.919	3.422877942
191217	12811565.59	3658929.566	3.501451821
262144	18083484.64	5447663.169	3.319493897
398853	28649635.31	9477385.581	3.022947106
524288	39305314.66	12319792.19	3.190420265
719289	55494180.42	17043838.68	3.255967242
1048576	83604593.4	27344320.32	3.057475644

IntBenchmark

Runtime fit

$y = 11.565x^{1.1525}$
$R^2 = 0.9994$

$y = 1.5987x^{1.2132}$
$R^2 = 0.9987$

- ArraySortOnly
- NetworkSortOnly
- ····· Power (ArraySortOnly)
- ····· Power (NetworkSortOnly)

Speedup Net/Arr

- Speedup Net/Arr

FloatBenchmark

N	ArraySortOnly	NetworkSortOnly	Speedup Net/Arr
4	64.73944149	17.24569441	3.753948084
8	121.7727576	12.444761	9.78506197
12	189.7814372	24.89308097	7.623862932
16	268.9745279	24.06220351	11.17829993
27	598.916262	159.6585027	3.751233111
32	757.051603	137.4732097	5.506902797
47	1169.578827	257.8599675	4.535713076
64	1752.784783	306.57946	5.717228361
128	3811.192904	1333.546594	2.857937564
177	6927.439707	1403.843541	4.934623771
256	9298.533838	1258.634839	7.387793148
364	13714.35194	2228.898157	6.152973789
512	19776.12341	3131.993357	6.31422904
748	29498.63982	4760.729398	6.196243759
1024	43715.94443	6628.170961	6.595476292
2048	97104.88277	16021.86693	6.060772016
3389	185531.7327	32948.81919	5.630906881
4096	216382.3865	31566.92098	6.854719426
6793	360588.7001	59456.56007	6.064742052
8192	441965.0392	76124.72846	5.805801192
14289	811680.5031	156385.4275	5.190256638
16384	944085.4262	188499.9329	5.008412531
32768	2020326.861	421466.5851	4.793563553
53151	3586715.352	650593.5938	5.51298904
65536	4429293.778	960243.9416	4.612675578
96317	7032814.196	1667884.912	4.2166064
131072	10210969.13	2738639.005	3.728483056
191217	14588480.93	4109879.063	3.54961319
262144	21566531.03	6284282.837	3.431820558
398853	33971822.63	9976650.304	3.405133145
524288	39886374.9	12538006.32	3.181237423
719289	60427514.12	17464913.09	3.459937866
1048576	85302599.57	27872840.05	3.060420087

FloatBenchmark

Runtime fit

$y = 14.604x^{1.1394}$
$R^2 = 0.9956$

$y = 1.9795x^{1.1876}$
$R^2 = 0.998$

- ArraySortOnly
- NetworkSortOnly
- ······ Power (ArraySortOnly)
- ······ Power (NetworkSortOnly)

Speedup Net/Arr

- Speedup Net/Arr
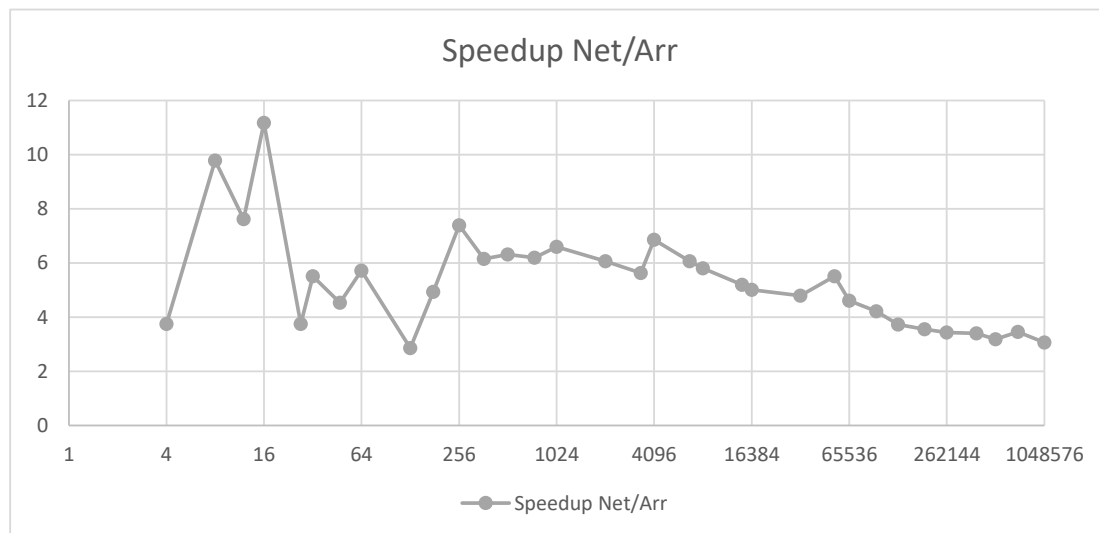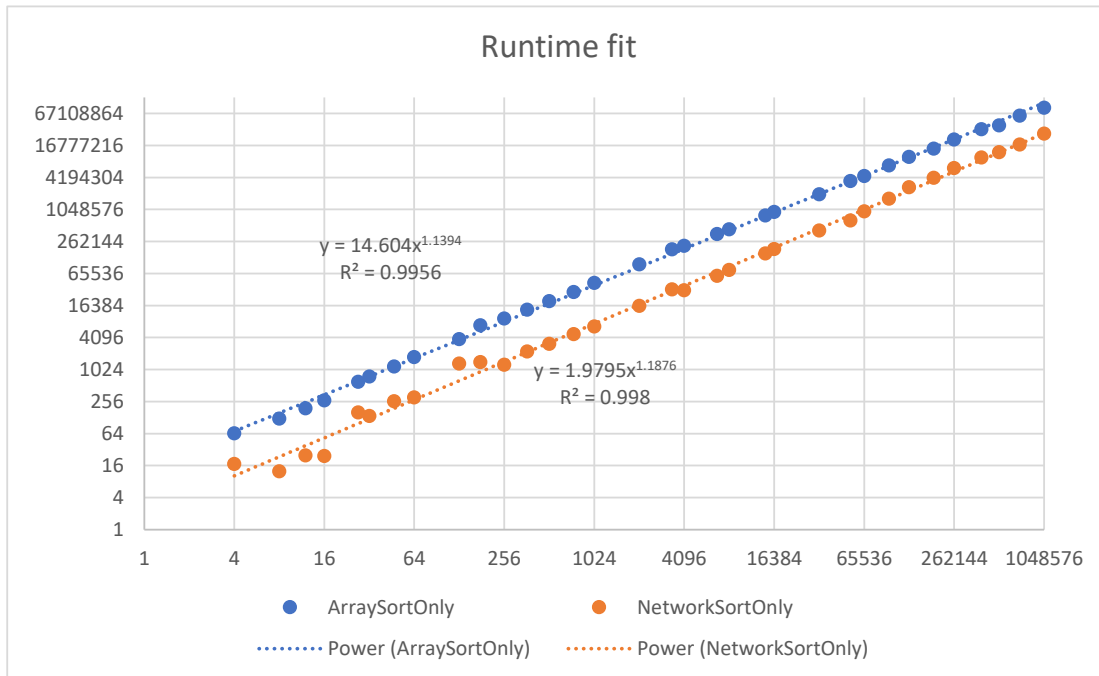
Int vs Float

N	TFloat / Tint (Arr)	TFloat / Tint (Net)
4	1.390444	2.01619
8	1.290116	3.085943
12	1.348613	1.292773
16	1.214112	0.623855
27	1.257326	1.046642
32	1.101057	0.987081
47	1.157848	1.061986
64	1.161078	1.126365
128	1.083183	1.959827
177	1.356146	1.484349
256	1.220923	0.585899
364	1.0988	0.881608
512	1.110392	0.955146
748	1.068479	0.835082
1024	1.115079	0.672021
2048	1.084682	0.884157
3389	1.207321	0.817107
4096	1.12566	0.76262
6793	1.071828	0.676635
8192	0.997673	0.818807
14289	1.051113	0.896485
16384	1.028909	0.929806
32768	1.062734	0.964104
53151	1.084752	0.856192
65536	1.085364	0.890098
96317	1.115151	1.02398
131072	1.185714	1.088527
191217	1.138696	1.123246
262144	1.192609	1.153574
398853	1.185768	1.05268
524288	1.014783	1.017712
719289	1.088898	1.024705
1048576	1.02031	1.019328

Float/Int relative time

TFloat / Tint (Arr)   TFloat / Tint (Net)
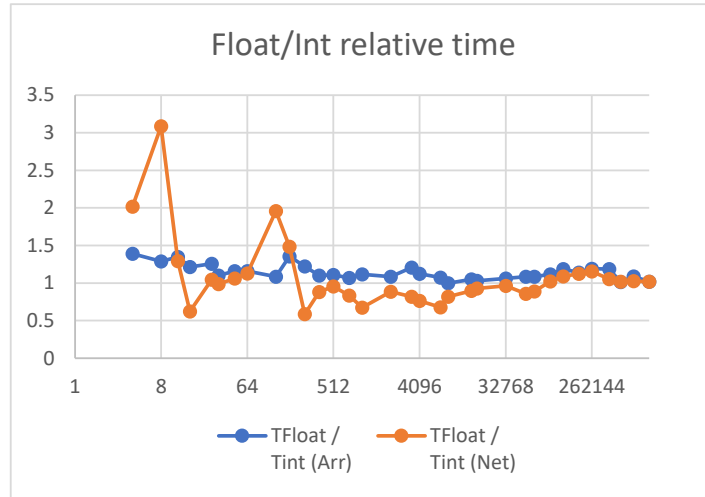
Specialized (PeriodicInt)

IntArraySort

N	Asc	Desc	Rand
4	25.735	30.328	41.451
8	39.532	60.039	77.281
16	56.214	183.428	179.013
32	94.773	117.784	585.454

IntNetworkSort

N	Asc	Desc	Rand
4	8.343	8.591	9.096
8	9.138	5.884	12.096
16	12.226	14.974	22.77
32	24.884	24.312	51.234

ArraySort
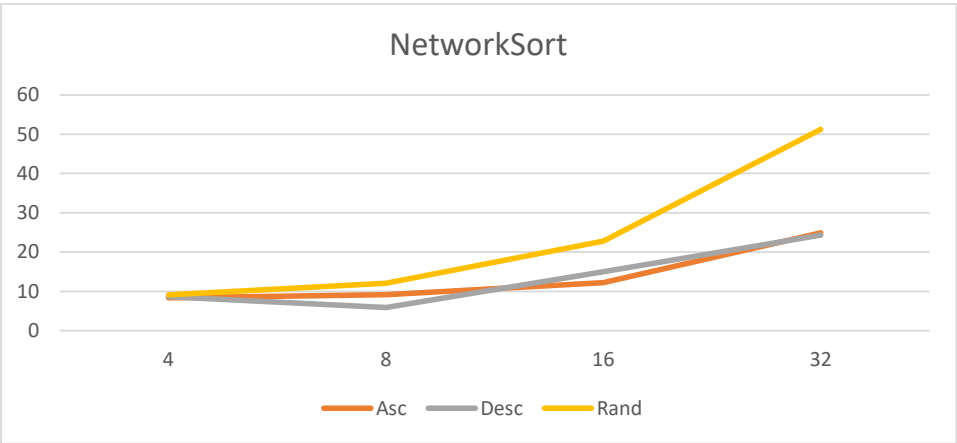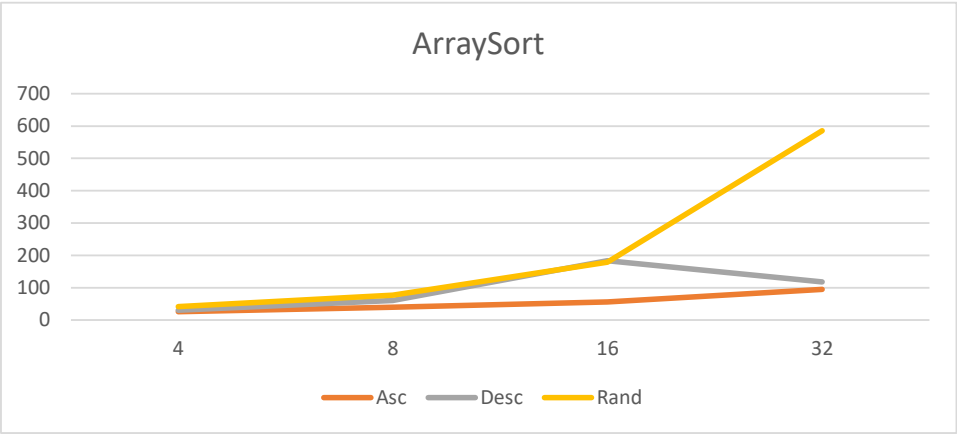
NetworkSort

LogFit

N	Int ArraySortOnly /LgN	Int NetworkSortOnly /(LgN)^2
4	23.28014	2.138402
8	31.463	0.448081
12	39.25381	1.49826
16	55.38501	2.410635
27	100.1793	6.747041
32	137.5137	5.570899
47	181.8554	7.86976
64	251.603	7.560688
128	502.6447	13.88655
177	684.0456	16.95977
256	951.9987	33.56582
364	1467.032	34.92855
512	1978.894	40.4824
748	2891.837	62.549
1024	3920.433	98.63046
2048	8138.532	149.7609
3389	13104.54	293.2333
4096	16018.93	287.4493
6793	26428	542.2505
8192	34076.59	550.1201
14289	55946.68	915.652
16384	65539.98	1034.339
32768	126737.7	1942.929
53151	210633.4	3083.618
65536	255058.2	4214.088
96317	380937	5942.783
131072	506568.6	8705.584
191217	730218	11886.52
262144	1004638	16813.78
398853	1539848	27378.27
524288	2068701	34126.85
719289	2852260	45024.7
1048576	4180230	68360.8

Chart Title

$y = 3.9669x - 5227.5$
$R^2 = 0.9998$

$y = 0.0647x - 14.203$
$R^2 = 0.9992$

Series1   Series2
Linear (Series1)   Linear (Series2)