

## READ PER BYTE

**Test on only IO read/write without blokking**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
100x100x100	100	3.81	00,00,05	5	781.25
200x200x200	200	30.52	00,00,40	40	781.25
400x400x400	400	244.14	00,05,12	314	796.18
800x800x800	800	1953.13	00,42,13	2533	789.58
<b>Average</b>					<b>787.06</b>

**Test of IO read/write with blokking along xc X5**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
100x100x100	100	3.81	00,00,05	5	781.25
200x200x200	200	30.52	00,00,38	38	822.37
400x400x400	400	244.14	00,05,06	306	816.99
800x800x800	800	1953.13	00,40,53	2453	815.33
<b>Average</b>					<b>808.99</b>

**Test of IO read/write with blokking along vc X5**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
100x100x100	100	3.81	00,00,05	5	781.25
200x200x200	200	30.52	00,00,39	39	801.28
400x400x400	400	244.14	00,05,20	320	781.25
800x800x800	800	1953.13	00,42,04	2524	792.39
<b>Average</b>					<b>789.04</b>

**Test of IO read/write with blokking along ic X5**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
100x100x100	100	3.81	00,00,05	5	781.25
200x200x200	200	30.52	00,00,38	38	822.37
400x400x400	400	244.14	00,05,17	317	788.64
800x800x800	800	1953.13	00,42,04	2524	792.39
<b>Average</b>					<b>796.16</b>

## READ PER BLOCK

**Test on only IO read/write without blokking**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
200x200x200	200	30.52	00,00,01,83	2	15625
400x400x400	400	244.14	00,00,17,39	17	14705.88
800x800x800	800	1953.13	00,02,31,00	151	13245.03
<b>Average</b>					<b>14525.31</b>

**Test of IO read/write with blokking along xc X5**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
200x200x200	200	30.52	00,00,01,80	2	15625
400x400x400	400	244.14	00,00,18,52	18	13888.89
800x800x800	800	1953.13	00,00,02,29	149	13422.82
<b>Average</b>					<b>14312.24</b>

**Test of IO read/write with blokking along vc X5**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
200x200x200	200	30.52	00,00,01,80	2	15625
400x400x400	400	244.14	00,00,17,50	18	13888.89
800x800x800	800	1953.13	00,02,30,74	150	13333.33
<b>Average</b>					<b>14282.41</b>

**Test of IO read/write with blokking along ic X5**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
200x200x200	200	30.52	00,31,31	31	1008.06
400x400x400	400	244.14	00,05,17	317	788.64
800x800x800	800	1953.13	00,42,04	2524	792.39
<b>Average</b>					<b>863.03</b>

## READ PER BLOCK MED MINNE OPTIMERING

**Test of only IO read/write with blokking along vc X5**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
200x200x200	200	30.52	00,00,00,87	0.87	71839.08
300x300x300	300	103	00,00,03,06	3	70312.5
400x400x400	400	244.14	00,00,07,70	7.7	64935.06
500x500x500	500	476.84	00,00,18,89	19	51398.03
600x600x600	600	823.97	00,00,37,38	37	45608.11
700x700x700	700	1308.44	00,01,00,32	60	44661.46
800x800x800	800	1953.13	00,01,27,74	88	45454.55
900x900x900	900	2780.91	00,02,03,35	123	46303.35
1000x1000x1000	1000	3814.7	00,03,26,42	206	37924.76
<b>Average</b>					<b>55064.02</b>

## READ PER BLOCK MED MINNE OPTIMERING I C

**Test of only IO read/write with blokking along vc X5**

Dimension	Dim	Data MB	Time	Sec	Trans rate Kb/s
200x200x200	200	30.52	00,00,00,83	0.41	76219.51
300x300x300	300	103	00,00,02,61	1.59	66332.55
400x400x400	400	244.14	00,00,06,30	4.61	54229.93
500x500x500	500	476.84	00,00,11,93	8.95	54556.56
600x600x600	600	823.97	00,00,21,39	15.05	56063.12
700x700x700	700	1308.44	00,00,33,34	22.46	59654.66
800x800x800	800	1953.13	00,00,51,82	32.9	60790.27
900x900x900	900	2780.91	00,01,13,65	48.6	58593.75
1000x1000x1000	1000	3814.7	00,01,39,95	64.44	60618.4
2000x2000x2000	2000	30517.58	00,01,39,95	519.4	60165.58
<b>Average</b>					<b>58854.91</b>

As of 2008, a typical 7200rpm desktop hard drive has a sustained "disk-to-buffer" data transfer rate of about 70 megabytes per second

## READ PER BLOCK W/Filter

**Test of IO read/write and filtering with blokking along vc X5**

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %
<b>5x5x5</b>	400x400x400	1219.51	205	96.1
	500x500x500	1352.58	361	94.74
	600x600x600	1422.85	593	93.76
	700x700x700	1343.88	997	93.98
	800x800x800	1211.39	1651	94.67
<b>Average</b>				<b>94.65</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %
<b>9x9x9</b>	400x400x400	265.39	942	99.15
	500x500x500	242.93	2010	99.05
	600x600x600	241.62	3492	98.94
	700x700x700	239.6	5592	98.93
	800x800x800	236.41	8460	98.96
<b>Average</b>				<b>99.01</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %
<b>13x13x13</b>	400x400x400	87.23	2866	99.72
	500x500x500	86.42	5650	99.66
	600x600x600	87.42	9651.22	99.62
	700x700x700	86.3	15525	99.61
	800x800x800	85.02	23525	99.63
<b>Average</b>				<b>99.65</b>

## READ PER BLOCK W/Filter I C

**Test of IO read/write and filtering with blokking along vc X5**

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %
<b>5x5x5</b>	400x400x400	11332.73	22.06	79.1
	500x500x500	12056.33	40.5	77.9
	600x600x600	12433.69	67.86	77.82
	700x700x700	12294.4	108.98	79.39
	800x800x800	11946.72	167.41	80.35
<b>Average</b>				<b>78.91</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %
<b>9x9x9</b>	400x400x400	2824.86	88.5	94.79
	500x500x500	2625.17	186	95.19
	600x600x600	2528.24	333.73	95.49
	700x700x700	2547.13	526.02	95.73
	800x800x800	2539.97	787.41	95.82
<b>Average</b>				<b>95.4</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %
<b>13x13x13</b>	400x400x400	1045.94	239.02	98.07
	500x500x500	995.88	490.3	98.17
	600x600x600	991.22	851.22	98.23
	700x700x700	983.6	1362.19	98.35
	800x800x800	941.69	2123.84	98.45
	900x900x900	922.68	3086.3	98.43
	1000x1000x1000	901.55	4332.8	98.51
	2000x2000x2000	875.48	35694.7	98.54
<b>Average</b>				<b>98.26</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %
<b>17x17x17</b>	400x400x400	497.02	503	99.08

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %
<b>21x21x21</b>	400x400x400	283.19	882.8	99.48

## READ PER BLOCK W/Filter I C OPENMP

**Test of IO read/write and filtering with blokking along vc X5**

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %	speedup
<b>5x5x5</b>	400x400x400	24557.96	10.18	54.72	2.17
	500x500x500	23577.08	20.71	56.78	1.96
	600x600x600	22841.09	36.94	59.26	1.84
	700x700x700	22469.29	59.63	62.33	1.83
	800x800x800	20383.2	98.12	66.47	1.71
<b>Average</b>				<b>59.91</b>	<b>1.9</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %	speedup
<b>9x9x9</b>	400x400x400	7861.64	31.8	85.5	2.78
	500x500x500	7617.49	64.1	86.04	2.90
	600x600x600	7407.81	113.9	86.79	2.93
	700x700x700	6662.57	201.1	88.83	2.62
	800x800x800	5876.3	340.35	90.33	2.31
<b>Average</b>				<b>87.5</b>	<b>2.71</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %	speedup
<b>13x13x13</b>	400x400x400	3298.15	75.8	93.92	3.15
	500x500x500	3248.71	150.3	94.05	3.26
	600x600x600	3127.32	269.8	94.42	3.16
	700x700x700	3159.86	424.02	94.7	3.21
	800x800x800	3316.75	603	94.54	3.52
	900x900x900	3293.61	864.6	94.38	3.57
	1000x1000x1000	3219.79	1213.2	94.69	3.57
	2000x2000x2000	3136.83	9962.3	94.79	3.58
<b>Average</b>				<b>94.33</b>	<b>3.26</b>

READ PER BLOCK W/Filter I CUDA

**Test of IO read/write and filtering with blokking along vc X5**

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %	speedup
<b>5x5x5</b>	400x400x400	45454.55	5.5	16.18	4.01
	500x500x500	46064.27	10.6	15.57	3.82
	600x600x600	45855.98	18.4	18.21	3.69
	700x700x700	45112.58	29.7	24.38	3.67
	800x800x800	44444.44	45	26.89	3.72
<b>Average</b>				<b>20.24</b>	<b>3.78</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %	speedup
<b>9x9x9</b>	400x400x400	30487.8	8.2	43.78	10.79
	500x500x500	28554.46	17.1	47.66	10.88
	600x600x600	28994.85	29.1	48.28	11.47
	700x700x700	28813.84	46.5	51.7	11.31
	800x800x800	28208.74	70.9	53.6	11.11
<b>Average</b>				<b>49</b>	<b>11.11</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %	speedup
<b>13x13x13</b>	400x400x400	16556.29	15.1	69.47	15.83
	500x500x500	15354.76	31.8	71.86	15.42
	600x600x600	15066.96	56	73.13	15.2
	700x700x700	15365.18	87.2	74.24	15.62
	800x800x800	15048.91	132.9	75.24	15.98
	900x900x900	15122.98	188.3	74.19	16.39
	1000x1000x1000	15012.49	260.2	75.23	16.65
	2000x2000x2000	14744.74	2119.4	75.49	16.84
<b>Average</b>				<b>73.73</b>	<b>25.59</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %	speedup
<b>17x17x17</b>	400x400x400	8503.4	29.4	84.32	17.11

Filter size	Dimension	Comp Rate Kb/s	Sec	Computation Time %	speedup
<b>21x21x21</b>	400x400x400	4816.96	51.9	91.12	17.01

## READ PER BLOCK W/Filter I CUDA MULTI GPU

Test of IO read/write and filtering with blokking along vc X5

Filter size	Dimension	Comp Rate Kb/s	Sec	Comp Time %	speedup CPU	speedup GPU
<b>5x5x5</b>	400x400x400	46382.19	5.39	14.47	4.09	1.02
	500x500x500	46502.98	10.5	14.76	3.86	1.01
	600x600x600	47005.57	17.95	16.16	3.78	1.03
	700x700x700	46603.26	28.75	21.88	3.79	1.03
	800x800x800	44943.82	44.5	26.07	3.76	1.01
<b>Average</b>				<b>18.67</b>	<b>3.86</b>	<b>1.02</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Comp Time %	speedup CPU	speedup GPU
<b>9x9x9</b>	400x400x400	35161.74	7.11	35.16	12.45	1.15
	500x500x500	35002.24	13.95	35.84	13.33	1.23
	600x600x600	35436.79	23.81	36.79	14.02	1.22
	700x700x700	35074.44	38.2	41.2	13.77	1.22
	800x800x800	35149.38	56.9	42.18	13.84	1.25
<b>Average</b>				<b>38.24</b>	<b>13.48</b>	<b>1.21</b>

Filter size	Dimension	Comp Rate Kb/s	Sec	Comp Time %	speedup CPU	speedup GPU
<b>13x13x13</b>	400x400x400	32051.28	7.8	40.9	30.64	1.94
	500x500x500	37880.62	12.89	30.57	38.04	2.47
	600x600x600	43048.47	19.6	23.21	43.43	2.86
	700x700x700	47698.25	28.09	20.04	48.49	3.1
	800x800x800	49875.31	40.1	17.96	52.96	3.31
	900x900x900	52154.88	54.6	10.99	56.53	3.45
	1000x1000x1000	54863.06	71.2	9.49	60.85	3.65
	2000x2000x2000	54357.28	574.9	9.65	62.09	3.69
<b>Average</b>				<b>20.55</b>	<b>78.61</b>	<b>3.5</b>