

### original

LoopTime: update:30.242100 ms draw:52.664200 ms tot:82.906303  
LoopTime: update:25.547901 ms draw:53.329300 ms tot:78.877205  
LoopTime: update:26.838100 ms draw:52.299000 ms tot:79.137100  
LoopTime: update:26.239401 ms draw:50.516201 ms tot:76.755600  
LoopTime: update:26.649900 ms draw:51.942402 ms tot:78.592300

Changelist: 13258

Nov 12

### Double → float

LoopTime: update:19.317101 ms draw:50.256302 ms tot:69.573402  
LoopTime: update:19.377300 ms draw:48.415401 ms tot:67.792702  
LoopTime: update:19.330900 ms draw:47.654900 ms tot:66.985802  
LoopTime: update:21.564201 ms draw:48.396400 ms tot:69.960602  
LoopTime: update:19.150400 ms draw:47.020599 ms tot:66.170998

Changelist: 13470

Nov 13

### BigFour

LoopTime: update:22.239401 ms draw:49.614803 ms tot:71.854202  
LoopTime: update:21.400700 ms draw:48.841900 ms tot:70.242599  
LoopTime: update:20.256701 ms draw:47.625301 ms tot:67.882004  
LoopTime: update:19.398401 ms draw:47.163502 ms tot:66.561897  
LoopTime: update:23.419102 ms draw:47.724003 ms tot:71.143105

ChangeLst: 13630

Nov 14

### SIMD

(multiplication)

LoopTime: update:24.184900 ms draw:45.844101 ms tot:70.028999  
LoopTime: update:23.860199 ms draw:46.298103 ms tot:70.158302  
LoopTime: update:24.697300 ms draw:47.924297 ms tot:72.621597  
LoopTime: update:22.063700 ms draw:45.405304 ms tot:67.469002  
LoopTime: update:23.328100 ms draw:44.874901 ms tot:68.203003

(opertor /=, tmp.set() in Particle.cpp)

LoopTime: update:23.691299 ms draw:45.859501 ms tot:69.550797  
LoopTime: update:21.418800 ms draw:43.065399 ms tot:64.484200  
LoopTime: update:20.780901 ms draw:51.507099 ms tot:72.288002  
LoopTime: update:22.373701 ms draw:43.562801 ms tot:65.936501  
LoopTime: update:20.879900 ms draw:43.325100 ms tot:64.205002

Changelist: 13800

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### Matrix multiplication in one function

(after) draw speed up 2.0ms

LoopTime: update:21.107601 ms draw:41.396400 ms tot:62.504002  
LoopTime: update:24.928801 ms draw:40.639301 ms tot:65.568108  
LoopTime: update:21.094000 ms draw:40.648697 ms tot:61.742702  
LoopTime: update:24.037100 ms draw:40.193100 ms tot:64.230202  
LoopTime: update:20.894300 ms draw:41.712700 ms tot:62.607006

### Use double linked list for draw(), remove drawBuffer

LoopTime: update:8.242400 ms draw:40.373898 ms tot:48.616299  
LoopTime: update:8.636300 ms draw:38.767300 ms tot:47.403599  
LoopTime: update:8.269600 ms draw:40.035099 ms tot:48.304699  
LoopTime: update:8.406100 ms draw:40.479000 ms tot:48.885101  
LoopTime: update:8.696401 ms draw:38.967899 ms tot:47.664299

Changlist: 14099

Nov016

### Create big function for matrixTransform (camTrans \* ParTrans \* scale ....)

Speedup (3.0ms)

LoopTime: update:8.327200 ms draw:37.636997 ms tot:45.964199  
LoopTime: update:8.386000 ms draw:35.803200 ms tot:44.189201

LoopTime: update:8.446800 ms draw:36.281803 ms tot:44.728603  
LoopTime: update:8.422900 ms draw:36.135799 ms tot:44.558701  
LoopTime: update:10.823900 ms draw:36.704903 ms tot:47.528805

SIMD (Vect4D \*)

LoopTime: update:11.173901 ms draw:36.696301 ms tot:47.870201  
LoopTime: update:8.610000 ms draw:36.140301 ms tot:44.750298  
LoopTime: update:8.644200 ms draw:36.872902 ms tot:45.517101  
LoopTime: update:13.048100 ms draw:40.557800 ms tot:53.605904  
LoopTime: update:9.160300 ms draw:35.372803 ms tot:44.533100

ChangeList: 14506

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Remove determinant

LoopTime: update:11.594399 ms draw:45.346600 ms tot:56.940998  
LoopTime: update:8.726299 ms draw:37.739998 ms tot:46.466297  
LoopTime: update:8.215600 ms draw:39.720299 ms tot:47.935898  
LoopTime: update:7.662900 ms draw:34.742500 ms tot:42.405399  
LoopTime: update:7.530800 ms draw:36.003502 ms tot:43.534302  
LoopTime: update:7.740500 ms draw:35.203602 ms tot:42.944103  
LoopTime: update:8.220600 ms draw:37.384102 ms tot:45.604698  
LoopTime: update:9.922100 ms draw:34.890499 ms tot:44.812599  
LoopTime: update:7.529900 ms draw:35.148201 ms tot:42.678101  
LoopTime: update:7.641000 ms draw:34.484501 ms tot:42.125500  
LoopTime: update:7.817000 ms draw:35.098797 ms tot:42.915798  
LoopTime: update:7.580300 ms draw:35.114201 ms tot:42.694496  
LoopTime: update:10.245400 ms draw:36.141998 ms tot:46.387402  
LoopTime: update:7.676400 ms draw:34.592598 ms tot:42.268997  
LoopTime: update:10.528100 ms draw:35.247097 ms tot:45.775196  
LoopTime: update:7.597900 ms draw:35.541100 ms tot:43.139000

ChangeList: 14634

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Convert double linked list particles to particles[NUM]

Looping with pointer increments

LoopTime: update:1.128900 ms draw:31.810999 ms tot:32.939899  
LoopTime: update:1.206300 ms draw:30.452299 ms tot:31.658602  
LoopTime: update:1.364500 ms draw:34.150101 ms tot:35.514599  
LoopTime: update:1.114900 ms draw:30.472399 ms tot:31.587299  
LoopTime: update:1.158500 ms draw:30.353901 ms tot:31.512398

ChangeList: 14984

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Compiler setting

(Floating Point Model: fast)

LoopTime: update:0.972800 ms draw:30.963501 ms tot:31.936300  
LoopTime: update:0.779300 ms draw:29.171101 ms tot:29.950401  
LoopTime: update:0.738200 ms draw:33.955902 ms tot:34.694103

(Favor Size Or Speed: Speed)

LoopTime: update:0.769500 ms draw:28.314400 ms tot:29.083900  
LoopTime: update:0.893600 ms draw:30.724600 ms tot:31.618200  
LoopTime: update:0.785500 ms draw:28.362400 ms tot:29.147900

(Struct member alignment: 16)

LoopTime: update:0.740400 ms draw:28.297800 ms tot:29.038200  
LoopTime: update:0.838800 ms draw:28.807100 ms tot:29.645901  
LoopTime: update:0.866300 ms draw:29.055500 ms tot:29.921801

Rm cos sin calls outside loop

LoopTime: update:0.649100 ms	draw:36.354000 ms	tot:37.003101
LoopTime: update:0.620900 ms	draw:28.511002 ms	tot:29.131901
LoopTime: update:0.665100 ms	draw:28.119202 ms	tot:28.784302
LoopTime: update:0.671900 ms	draw:27.758001 ms	tot:28.429901
LoopTime: update:0.740300 ms	draw:27.993601 ms	tot:28.733900
LoopTime: update:0.698300 ms	draw:28.021900 ms	tot:28.720200
LoopTime: update:0.630200 ms	draw:28.290600 ms	tot:28.920799
LoopTime: update:0.696600 ms	draw:27.895300 ms	tot:28.591900
LoopTime: update:0.694600 ms	draw:28.003500 ms	tot:28.698099

Move gl setups in ParticleEmitter C-tor

LoopTime: update:0.705800 ms	draw:24.592999 ms	tot:25.298798
LoopTime: update:0.655800 ms	draw:24.057800 ms	tot:24.713600
LoopTime: update:0.707500 ms	draw:25.885601 ms	tot:26.593102
LoopTime: update:0.614000 ms	draw:24.492901 ms	tot:25.106901
LoopTime: update:0.617700 ms	draw:24.447800 ms	tot:25.065500
LoopTime: update:0.651200 ms	draw:26.241701 ms	tot:26.892900
LoopTime: update:0.698000 ms	draw:23.912800 ms	tot:24.610800
LoopTime: update:0.735100 ms	draw:23.979900 ms	tot:24.715000
LoopTime: update:0.617500 ms	draw:25.110401 ms	tot:25.727901

In performance Profiler (release)

LoopTime: update:0.856900 ms	draw:9.971300 ms	tot:10.828200
LoopTime: update:0.843600 ms	draw:9.604100 ms	tot:10.447701
LoopTime: update:0.620800 ms	draw:9.646200 ms	tot:10.267000
LoopTime: update:1.106500 ms	draw:10.210401 ms	tot:11.316900
LoopTime: update:0.913000 ms	draw:10.182600 ms	tot:11.095600
LoopTime: update:0.728600 ms	draw:9.593901 ms	tot:10.322500
LoopTime: update:0.768300 ms	draw:9.980200 ms	tot:10.748500