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## 100 bodies:

Each sample counts as 0.01 seconds.

```
% cumulative self      self total

time seconds seconds  calls us/call us/call name

87.41  5.47  5.47  30729  178.06  178.06  Calculate_Gravity()

8.31   5.99  0.52  3072900  0.17  0.22  planet::Interact(double, double, double, double, double, double)

2.08   6.12  0.13  3073000  0.04  0.04  planet::TurnSyst(double, double, double)

1.60   6.22  0.10  30730  3.26  3.26  Calculate_Origin()

0.48   6.25  0.03  3072900  0.01  0.06  planet::Update(double, double, double)

0.16   6.26  0.01  3073000  0.00  0.00  planet::CILines(double)

0.00   6.26  0.00  48100  0.00  0.00  planet::ChangePr(long, double, int, int, bool, bool)

0.00   6.26  0.00  503  0.00  0.00  frand()

0.00   6.26  0.00  480  0.00  0.00  PermanentTurnSystem()

0.00   6.26  0.00  301  0.00  0.00  std::sqrt(float)

0.00   6.26  0.00  100  0.00  0.04  planet::Init(double, double, double)

0.00   6.26  0.00  100  0.00  0.00  planet::Show(double)

0.00   6.26  0.00  100  0.00  0.00  planet::Create(int, int, int, double, double, double, double, double, double, double, double, long)

0.00   6.26  0.00  1  0.00  0.00  _GLOBAL__sub_I_Z5frandv

0.00   6.26  0.00  1  0.00  0.00  Make_Galaxy(int, int, int, bool, bool, bool, char)

0.00   6.26  0.00  1  0.00  0.00  User_Defines_Galaxy()

0.00   6.26  0.00  1  0.00  0.00  __static_initialization_and_destruction_0(int, int)
```

## 500 bodies:

Each sample counts as 0.01 seconds.

%	cumulative	self	self	total			
time	seconds	seconds	calls	ms/call	ms/call	name	
96.79	21.80	21.80	4946	4.41	4.41	Calculate_Gravity()	
1.87	22.22	0.42	2473000	0.00	0.00	planet::Interact(double, double, double, double, double, double)	
0.67	22.37	0.15	2473500	0.00	0.00	planet::TurnSyst(double, double, double)	
0.40	22.46	0.09	2473000	0.00	0.00	planet::Update(double, double, double)	
0.27	22.52	0.06	4947	0.01	0.01	Calculate_Origin()	
0.04	22.53	0.01	2473500	0.00	0.00	planet::CILines(double)	
0.00	22.53	0.00	39000	0.00	0.00	planet::ChangePr(long, double, int, int, bool, bool)	
0.00	22.53	0.00	2503	0.00	0.00	frand()	
0.00	22.53	0.00	1501	0.00	0.00	std::sqrt(float)	
0.00	22.53	0.00	500	0.00	0.00	planet::Init(double, double, double)	
0.00	22.53	0.00	500	0.00	0.00	planet::Show(double)	
0.00	22.53	0.00	500	0.00	0.00	planet::Create(int, int, int, double, double, double, double, double, double, double, double, long)	
0.00	22.53	0.00	77	0.00	0.00	PermanentTurnSystem()	
0.00	22.53	0.00	1	0.00	0.00	_GLOBAL__sub_I_Z5frandv	
0.00	22.53	0.00	1	0.00	0.00	Make_Galaxy(int, int, int, bool, bool, bool, char)	
0.00	22.53	0.00	1	0.00	0.00	User_Defines_Galaxy()	
0.00	22.53	0.00	1	0.00	0.00	__static_initialization_and_destruction_0(int, int)	

## 1000 bodies:

Each sample counts as 0.01 seconds.

%	cumulative	self	self	total			
time	seconds	seconds	calls	ms/call	ms/call	name	
98.32	7.47	7.47	416	17.96	17.96	Calculate_Gravity()	
0.79	7.53	0.06	417000	0.00	0.00	planet::TurnSys(double, double, double)	
0.66	7.58	0.05	416000	0.00	0.00	planet::Interact(double, double, double, double, double, double)	
0.13	7.59	0.01	416000	0.00	0.00	planet::Update(double, double, double)	
0.13	7.60	0.01	417	0.02	0.02	Calculate_Origin()	
0.00	7.60	0.00	417000	0.00	0.00	planet::CLines(double)	
0.00	7.60	0.00	7000	0.00	0.00	planet::ChangePr(long, double, int, int, bool, bool)	
0.00	7.60	0.00	5003	0.00	0.00	frand()	
0.00	7.60	0.00	3001	0.00	0.00	std::sqrt(float)	
0.00	7.60	0.00	1000	0.00	0.00	planet::Init(double, double, double)	
0.00	7.60	0.00	1000	0.00	0.00	planet::Show(double)	
0.00	7.60	0.00	1000	0.00	0.00	planet::Create(int, int, int, double, double, double, double, double, double, double, double, long)	
0.00	7.60	0.00	6	0.00	0.00	PermanentTurnSystem()	
0.00	7.60	0.00	1	0.00	0.00	_GLOBAL__sub_I_Z5frandv	
0.00	7.60	0.00	1	0.00	0.00	Make_Galaxy(int, int, int, bool, bool, bool, char)	
0.00	7.60	0.00	1	0.00	0.00	User_Defines_Galaxy()	
0.00	7.60	0.00	1	0.00	0.00	__static_initialization_and_destruction_0(int, int)	

## 5000 bodies:

Each sample counts as 0.01 seconds.

%	cumulative	self	self	total					
time	seconds	seconds	calls	ms/call	ms/call	name			
99.78	12.12	12.12	27	449.03	449.03	Calculate_Gravity()			
0.16	12.14	0.02	135000	0.00	0.00	planet::Interact(double, double, double, double, double, double)			
0.08	12.15	0.01	135000	0.00	0.00	planet::Update(double, double, double)			
0.00	12.15	0.00	140000	0.00	0.00	planet::CILines(double)			
0.00	12.15	0.00	140000	0.00	0.00	planet::TurnSyst(double, double, double)			
0.00	12.15	0.00	25003	0.00	0.00	frand()			
0.00	12.15	0.00	15001	0.00	0.00	std::sqrt(float)			
0.00	12.15	0.00	5000	0.00	0.00	planet::Init(double, double, double)			
0.00	12.15	0.00	5000	0.00	0.00	planet::Show(double)			
0.00	12.15	0.00	5000	0.00	0.00	planet::Create(int, int, int, double, double, double, double, double, double, double, double, long)			
0.00	12.15	0.00	5000	0.00	0.00	planet::ChangePr(long, double, int, int, bool, bool)			
0.00	12.15	0.00	28	0.00	0.00	Calculate_Origin()			
0.00	12.15	0.00	1	0.00	0.00	_GLOBAL__sub_I_Z5frandv			
0.00	12.15	0.00	1	0.00	0.00	Make_Galaxy(int, int, int, bool, bool, bool, char)			
0.00	12.15	0.00	1	0.00	0.00	User_Defines_Galaxy()			
0.00	12.15	0.00	1	0.00	0.00	__static_initialization_and_destruction_0(int, int)			

## 10000 bodies:

Each sample counts as 0.01 seconds.

%	cumulative	self	self	total			
time	seconds	seconds	calls	s/call	s/call	name	
99.82	24.16	24.16	13	1.86	1.86	Calculate_Gravity()	
0.08	24.18	0.02	140000	0.00	0.00	planet::TurnSys(double, double, double)	
0.04	24.19	0.01	130000	0.00	0.00	planet::Update(double, double, double)	
0.04	24.20	0.01	130000	0.00	0.00	planet::Interact(double, double, double, double, double, double)	
0.04	24.21	0.01	10000	0.00	0.00	planet::Init(double, double, double)	
0.00	24.21	0.00	140000	0.00	0.00	planet::CILines(double)	
0.00	24.21	0.00	50003	0.00	0.00	frand()	
0.00	24.21	0.00	30001	0.00	0.00	std::sqrt(float)	
0.00	24.21	0.00	10000	0.00	0.00	planet::Show(double)	
0.00	24.21	0.00	10000	0.00	0.00	planet::Create(int, int, int, double, double, double, double, double, double, double, double, double, long)	
0.00	24.21	0.00	10000	0.00	0.00	planet::ChangePr(long, double, int, int, bool, bool)	
0.00	24.21	0.00	14	0.00	0.00	Calculate_Origin()	
0.00	24.21	0.00	1	0.00	0.00	_GLOBAL__sub_I_Z5frandv	
0.00	24.21	0.00	1	0.00	0.00	Make_Galaxy(int, int, int, bool, bool, bool, char)	
0.00	24.21	0.00	1	0.00	0.00	User_Defines_Galaxy()	
0.00	24.21	0.00	1	0.00	0.00	__static_initialization_and_destruction_0(int, int)	