German Razo

CSCI551

Report

ssh-agent bash

ssh-add ~/.ssh/id\_rsa

N = 44083498

ABRTE = 4.9344706640471111563e-15

T1 = 27.080032

Table of timings for all runs

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Times n = 44083498**  **Runs** | | |
|  | **1** | **2** | **3** |
| **comm\_sz (number of cores)** |  |  |  |
| **2** | 14.774259 | 14.778778 | 14.777839 |
| **8** | 3.736527 | 3.712802 | 3.725332 |
| **14** | 2.126143 | 2.185688 | 2.129180 |
| **20** | 1.506926 | 1.508567 | 1.531197 |

Speedups for each configuration

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Times, n = 43804687**  **Runs** | | |
|  | 1 | **2** | **3** |
| **comm\_sz (number of cores)** |  |  |  |
| **2** | 1.8329 | 1.8323 | 1.8324 |
| **8** | 7.2473 | 7.2936 | 7.2691 |
| **14** | 12.7366 | 12.3897 | 12.7185 |
| **20** | 17.9703 | 17.9508 | 17.6855 |

Efficiencies for each configuration

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Times, n = 43804687**  **Runs** | | |
|  | **1** | **2** | **3** |
| **comm\_sz (number of cores)** |  |  |  |
| **2** | .91645 | .916175 | .9162 |
| **8** | .90592 | .911711 | .9086 |
| **14** | .90976 | .884979 | .9084 |
| **20** | .89851 | .897541 | .8842 |

**Table of minimum times with estimated integral, absolute relative true error,**

**And calculated speedup and efficiency**.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Minimum time** | **Estimated integral** | **ABSTRE** | **Calculated Speedup** | **Efficiency** |
| **2** | 14.774259 | 4.7540192288588e+03 | 5.0344230268089317103e-15 | 1.8329 | .91645 |
| **8** | 3.712802 | 4.7540192288588e+03 | 5.0129379394862973857e-15 | 7.293 | .91171 |
| **14** | 2.126143 | 4.7540192288588e+03 | 5.0439511959694043240e-15 | 12.736 | .9097 |
| **20** | 1.506926 | 4.7540192288588e+03 | 5.0396541785048774588e-15 | 17.9703 | .89851 |

Graphs representation of each configuration

Speedup Graph

Efficiency Graph

**43000000**

**0 100 55500000**

**5500000**

**13107200 5.701955e-14**

**1.3992905500000000000**

**/26999999 - 50000000**

**0 100 89000000**

**44499999**

**44083498**

**43999999**

**44083083 cel:44084441 mid:44083762.0000000000000**

**fl:44083496 cel:44083498 mid:44083497.0000000000000**

**0 100 42000000**

**l:43804687 cel:44500000 mid:44152343.5000000000000**

**l:43804687 cel:44500000 mid:44152343.5000000000000**

**fl:43978515 cel:44152343 mid:44065429.0000000000000**

**fl:44081725 cel:44087157 mid:44084441.0000000000000**

**fl:44083083 cel:44084441 mid:44083762.0000000000000**

**2Cores**

1 Run

1. Time: 14.780935, ABSRE 5.0344230268089317103e-15 Integral: 4.7540192288588e+03
2. Time: 19.625122, ABSRE 5.0344230268089317103e-15 Integral: 4.7540192288588e+03
3. Time: 14.774259, ABSRE 5.0344230268089317103e-15 Integral: 4.7540192288588e+03

2Run

1. Time: 14.781535, ABSRE 5.0344230268089317103e-15 Integral: 4.7540192288588e+03
2. Time: 14.778778, ABSRE 5.0344230268089317103e-15 Integral: 4.7540192288588e+03
3. Time: 14.785097, ABSRE 5.0344230268089317103e-15 Integral: 4.7540192288588e+03

3Run

1. Time: 14.784493, ABSRE 5.0344230268089317103e-15 Integral: 4.7540192288588e+03
2. Time: 14.777839, ABSRE 5.0344230268089317103e-15 Integral: 4.7540192288588e+03
3. Time: 14.777839, ABSRE 5.0344230268089317103e-15 Integral: 4.7540192288588e+03

**8Cores**

1Run

1. Time: 3.739483, ABSRE 5.0129379394862973857e-15 Integral: 4.7540192288588e+03
2. Time: 3.748028, ABSRE 5.0129379394862973857e-15 Integral: 4.7540192288588e+03
3. Time: 3.736527, ABSRE 5.0129379394862973857e-15 Integral: 4.7540192288588e+03

2Run

1. Time: 3.731128, ABSRE 5.0129379394862973857e-15 Integral: 4.7540192288588e+03
2. Time: 3.712802, ABSRE 5.0129379394862973857e-15 Integral: 4.7540192288588e+03
3. Time: 3.719669, ABSRE 5.0129379394862973857e-15 Integral: 4.7540192288588e+03

3Run

1. Time: 3.725332, ABSRE 5.0129379394862973857e-15 Integral: 4.7540192288588e+03
2. Time: 3.734192, ABSRE 5.0129379394862973857e-15 Integral: 4.7540192288588e+03
3. Time: 3.750579, ABSRE 5.0129379394862973857e-15 Integral: 4.7540192288588e+03

**14Cores**

1Run

1. Time: 2.182241, ABSRE 5.0439511959694043240e-15 Integral: 4.7540192288588e+03
2. Time: 2.126143, ABSRE 5.0439511959694043240e-15 Integral: 4.7540192288588e+03
3. Time: 2.159059, ABSRE 5.0439511959694043240e-15 Integral: 4.7540192288588e+03

2Run

1. Time: 3.027148, ABSRE 5.0439511959694043240e-15 Integral: 4.7540192288588e+03
2. Time: 2.185688, ABSRE 5.0439511959694043240e-15 Integral: 4.7540192288588e+03
3. Time: 2.271023, ABSRE 5.0439511959694043240e-15 Integral: 4.7540192288588e+03

3Run

1. Time: 2.485289, ABSRE5.0439511959694043240e-15 Integral: 4.7540192288588e+03
2. Time: 2.180086, ABSRE 5.0439511959694043240e-15 Integral: 4.7540192288588e+03
3. Time: 2.129180, ABSRE 5.0439511959694043240e-15 Integral: 4.7540192288588e+03

**20Cores**

1Run

1. Time: 1.515536, ABSRE 5.0396541785048774588e-15 Integral: 4.7540192288588e+03
2. Time: 1.52567, ABSRE 5.0396541785048774588e-15 Integral: 4.7540192288588e+03
3. Time: 1.506926 ABSRE 5.0396541785048774588e-15 Integral: 4.7540192288588e+03

2Run

1. Time: 1.508567, ABSRE 5.0396541785048774588e-15 Integral: 4.7540192288588e+03
2. Time: 1.534503, ABSRE 5.0396541785048774588e-15 Integral: 4.7540192288588e+03
3. Time: 1.514102 ABSRE 5.0396541785048774588e-15 Integral: 4.7540192288588e+03

3Run

1. Time: 1.531197, ABSRE 5.0396541785048774588e-15 Integral: 4.7540192288588e+03
2. Time: 1.580722, ABSRE 5.0396541785048774588e-15 Integral: 4.7540192288588e+03
3. Time: 1.536876, ABSRE 5.0396541785048774588e-15 Integral: 4.7540192288588e+03

T1

1. 27.297300
2. 27.087698
3. 27.080032