**The Experiment about adaptive**

1. **Introduction.**

This time I do the experiment that proved the correctness of the adaptive pattern, I set first 50 tasks are normal tasks which cost 7000 around per 10 tasks at 2 workers, 50~100 are heavy tasks, and 100~150 are light tasks:

And I set the 2 works active at the begin, then if the consume larger than 8000 second, we need the adaptive, so used 4 workers, if the consume less than 2000 second, that means we don’t need the adaptive, so change back to 2 workers

And the second experiment test the adaptive with the 1%, 10, 20% stateful pattern, the consume of tasks are random

1. **experiment outputs.**

**2.1 correctness test**

**peng@pianosau:~/project$ g++ -std=c++11 -I$FF\_ROOT -O3 adaptive.cpp -o adapt -phread**

**peng@pianosau:~/project$ ./adapt**

**experiment 0 with 0% stateful**

**hello world!**

**worker 0 CPU id: 1**

**worker 1 CPU id: 2**

**worker 2 CPU id: 3**

**worker 3 CPU id: 4**

**worker 4 CPU id: 5**

**worker 5 CPU id: 6**

**worker 6 CPU id: 7**

**worker 7 CPU id: 8**

**total number of workers:8**

**total number of registered workers:8**

**task 0 send out**

**task 1 send out**

**task 2 send out**

**task 3 send out**

**task 4 send out**

**transaction No 1 spend 1509**

**task 5 send out**

**task 6 send out**

**transaction No 0 spend 1538**

**transaction No 3 spend 3019**

**transaction No task 27 spend 3047 send out**

**task 8 send out**

**transaction No 5 spend 2991**

**transaction No task 4 spend 4557**

**9 send out**

**task 10 send out**

**transaction No 7 spend 2990**

**task transaction No 11 send out**

**task 12 send out**

**6 spend 4529**

**transaction No 9 spend 2990**

**task transaction No 13 send out**

**task 14 send out**

**8 spend 4529**

**the consume during recent 10 tasks is : 7577**

**transaction No 11 spend 2982**

**task 15 send out**

**task 16 send out**

**transaction No 10 spend 4518**

**transaction No 13 spend 2973**

**task 17 send out**

**task 18 send out**

**transaction No 12 spend 4509**

**transaction No 15 spend 2974**

**task transaction No 19 send out**

**task 20 send out**

**14 spend 4500**

**transaction No 17 spend 2975**

**task transaction No 16 spend 4502**

**21 send out**

**task 22 send out**

**transaction No 19 spend 2976**

**task 23 send out**

**task 24 send out**

**transaction No 18 spend 4503**

**transaction No 21 spend 2976**

**the consume during recent 10 tasks is : 7479**

**task 25 send out**

**task 26 send out**

**transaction No 20 spend 4503**

**transaction No 23 spend 2975**

**task 27 send out**

**task 28 send out**

**transaction No 22 spend 4505**

**transaction No 25 spend 2973**

**task 29 send out**

**task 30 send out**

**transaction No 24 spend 4502**

**transaction No 27 spend 2972**

**task 31 send out**

**task 32 send out**

**transaction No 26 spend 4501**

**transaction No 29 spend 2971**

**task 33 send out**

**task 34 send out**

**transaction No 28 spend 4495**

**transaction No 31 spend 2967**

**the consume during recent 10 tasks is : 7469**

**task 35 send out**

**task 36 send out**

**transaction No 30 spend 4487**

**transaction No 33 spend 2962**

**transaction No 32 spend 4473**

**task 37 send out**

**task 38 send out**

**transaction No 35 spend 2958**

**task 39 send out**

**task 40 send out**

**transaction No 34 spend 4464**

**transaction No 37 spend 2965**

**task transaction No 41 send out**

**task 42 send out**

**36 spend 4466**

**transaction No 39 spend 2966**

**task 43 send out**

**task 44 send out**

**transaction No 38 spend 4472**

**transaction No 41 spend 2966**

**the consume during recent 10 tasks is : 7433**

**task 45 send out**

**task 46 send out**

**transaction No 40 spend 4473**

**transaction No 43 spend 2970**

**task 47 send out**

**task 48 send out**

**transaction No 42 spend 4468**

**transaction No 45 spend 2973**

**task 49 send out**

**task 50 send out**

**transaction No 44 spend 4469**

**transaction No 47 spend 2981**

**task 51 send out**

**task 52 send out**

**transaction No 46 spend 4474**

**transaction No 48 spend 4471**

**task 53 send out**

**task 54 send out**

**transaction No 49 spend 2984**

**task 55 send out**

**transaction No 50 spend 4468**

**the consume during recent 10 tasks is : 7449**

**task transaction No 56 send out**

**51 spend 3731**

**task 57 send out**

**transaction No 52 spend 5212**

**task 58 send out**

**transaction No 53 spend 4487**

**task 59 send out**

**transaction No 54 spend 5958**

**task 60 send out**

**transaction No 55 spend 5239**

**task 61 send out**

**transaction No 56 spend 5956**

**task 62 send out**

**transaction No 57 spend 5240**

**task 63 send out**

**transaction No 58 spend 5954**

**task 64 send out**

**transaction No 59 spend 5248**

**task 65 send out**

**transaction No 60 spend 5957**

**the consume during recent 10 tasks is : 10440**

**do need adaptive**

**current adaptive level is 4**

**task 66 send out**

**transaction No task 67 send out**

**61 spend 5255**

**task 68 send out**

**task 69 send out**

**transaction No 62 spend 5955**

**transaction No 67 spend 2217**

**task 70 send out**

**task 71 send out**

**transaction No task 72 send out**

**63 spend 5251**

**transaction No 66 spend 2237**

**task 73 send out**

**transaction No 64 spend 5953**

**transaction No 70 spend 2240**

**transaction No 65task 74 send out**

**task 75 send out**

**task 76 send out**

**spend 5249**

**transaction No 71 spend 2243**

**task 77 send out**

**transaction No 68 spend 5941**

**the consume during recent 10 tasks is : 5941**

**transaction No 75 spend 2242**

**transaction No 69 spend 5255**

**task 78 send out**

**task 79 send out**

**task 80 send out**

**transaction No 74 spend 2242**

**task 81 send out**

**transaction No 72 spend 5937**

**transaction No 79 spend 2237**

**transaction No 78 spend 2242**

**task 82 send out**

**task 83 send out**

**task 84 send out**

**transaction No 73 spend 5257**

**task 85 send out**

**transaction No 76 spend 5933**

**transaction No 82 spend 2238**

**task 86 send out**

**task 87 send out**

**task 88 send out**

**transaction No 77 spend 5265**

**transaction No 83 spend 2241**

**the consume during recent 10 tasks is : 4485**

**task 89 send out**

**transaction No 80 spend 5923**

**task 90 send out**

**task 91 send out**

**task 92 send out**

**transaction No 81 spend 5267**

**transaction No 87 spend 2240**

**transaction No 86 spend 2247**

**task 93 send out**

**transaction No 84 spend 5919**

**task 94 send out**

**task 95 send out**

**task 96 send out**

**transaction No 85 spend 5274**

**transaction No 91 spend 2246**

**transaction No 90 spend 2252**

**task 97 send out**

**transaction No 88 spend 5920**

**task 98 send out**

**task 99 send out**

**task 100 send out**

**transaction No 89 spend 5285**

**the consume during recent 10 tasks is : 5285**

**transaction No 95 spend 2247**

**transaction No 94 spend 2247**

**task 101 send out**

**transaction No 92 spend 5920**

**transaction No 99 spend 2241**

**transaction No task 93102 send out**

**task 103 send out**

**task 104 send out**

**spend 5288**

**transaction No 98 spend 2243**

**transaction No 103 spend 747**

**transaction No 102 spend 749**

**task 105 send out**

**transaction No 96 spend 5912**

**task transaction No 106 send out**

**task 107 send out**

**task 108 send out**

**97 spend 5291**

**transaction No 107 spend 746**

**transaction No 101 spend 3801**

**the consume during recent 10 tasks is : 3801**

**transaction No 106 spend 749**

**task 109 send out**

**task 110 send out**

**task 111 send out**

**task 112 send out**

**transaction No 100 spend 5898**

**transaction No 105 spend 2308**

**task 113 send out**

**task 114 send out**

**task 115 send out**

**task 116 send out**

**transaction No 104 spend 4402**

**transaction No 111 spend 746**

**transaction No 110 spend 746**

**transaction No 109 spend 826**

**task 117 send out**

**task 118 send out**

**task 119 send out**

**transaction No 108 spend 2903**

**task 120 send out**

**transaction No 115 spend 748**

**transaction No 114 spend 750**

**transaction No 113 spend 825**

**the consume during recent 10 tasks is : 1572**

**do not need adaptive**

**current adaptive level is 2**

**task 121 send out**

**transaction No 112 spend task 2235122**

**send out**

**transaction No 118 spend 751**

**transaction No 119 spend 751**

**transaction No 117 spend 829**

**task 123 send out**

**task 124 send out**

**transaction No 116 spend 2232**

**transaction No 121 spend 830**

**task 125 send out**

**task 126 send out**

**transaction No 120 spend 2230**

**transaction No 123 spend 837**

**task 127 send out**

**task 128 send out**

**transaction No 122 spend 2233**

**transaction No 125 spend 842**

**the consume during recent 10 tasks is : 2329**

**task 129 send out**

**transaction No task 130 send out**

**124 spend 2233**

**transaction No 127 spend 843**

**task 131 send out**

**task 132 send out**

**transaction No 126 spend 2235**

**transaction No 129 spend 845**

**task 133 send out**

**task 134 send out**

**transaction No 128 spend 2232**

**transaction No 131 spend 852**

**task 135 send out**

**task 136 send out**

**transaction No 130 spend 2235**

**transaction No 133 spend 857**

**task 137 send out**

**task 138 send out**

**transaction No 132 spend 2236**

**transaction No 135 spend 858**

**the consume during recent 10 tasks is : 3094**

**task 139 send out**

**task 140 send out**

**transaction No 134 spend 2243**

**transaction No 137 spend 862**

**task 141 send out**

**task 142 send out**

**transaction No 136 spend 2237**

**transaction No 139 spend 849**

**task 143 send out**

**task 144 send out**

**transaction No 138 spend 2230**

**transaction No 141 spend 854**

**task 145 send out**

**task 146 send out**

**transaction No 140 spend 2213**

**transaction No 143 spend 859**

**task 147 send out**

**task 148 send out**

**transaction No 142 spend 2209**

**transaction No 145 spend 852**

**the consume during recent 10 tasks is : 3066**

**task 149 send out**

**emitter finish send out tasks**

**transaction No 144 spend 2209**

**transaction No 147 spend 849**

**transaction No 146 spend 2221**

**transaction No 149 spend 871**

**transaction No 148 spend 2226**

**on adaptive:**

**elapsed wall clock time time: 88896.2ms.**

**elapsed CPU time: 878**

**peng@pianosau:~/project$**

* 1. **stateful adaptive pattern test**

All the stateful test I used 150 tasks , and with adaptive of consume larger than 8000 second, we need the adaptive, so used 4 workers, if the consume less than 2000 second, that means we don’t need the adaptive, so change back to 2 workers

**After the test I found the adaptive function also could used on stateful pattern, and got the consume time below:**

**adaptive experiment 1 with 1% stateful : 168.3s**

**adaptive experiment 1 with 10% stateful: 240.0s**

**adaptive experiment 1 with 20% stateful: 298.9s**