3.3.2 SMT-2 performance in a two-way data sharing environment

The IBM Brokerage OLTP workload was also run in a two-way data sharing environment to observe the performance affect of the use of SMT-2. The workload ran in a parallel sysplex that consisted of two LPARs and one internal CF. Each LPAR has three CPs and three zIIPs. The internal CF had three dedicated CPs and eight ICP links that were shared between LPARs and the CF.

The workload was run by using zIIP processors with multithreading (SMT-2) enabled, and without multithreading (SMT-1). As with the one-way data sharing tests that are described in 3.3.1, “SMT-2 Performance in a one-way data sharing environment ” on page 102, the increased processing capacity comparing SMT-2 to SMT-1 was measured by the workload internal throughput rate (ITR). The effect on the total cost of computing for the workload was measured by the increased amount of zIIP CPU time or reduced CPU time on general CPs. In addition, the workload overhead when a two-way data sharing overhead was used was analyzed between SMT-1 and SMT-2.

The increased processing capacity when SMT-2 was used is shown in Figure 3-13. For this workload, as much as 15% more processing capacity was observed with SMT-2 enabled.

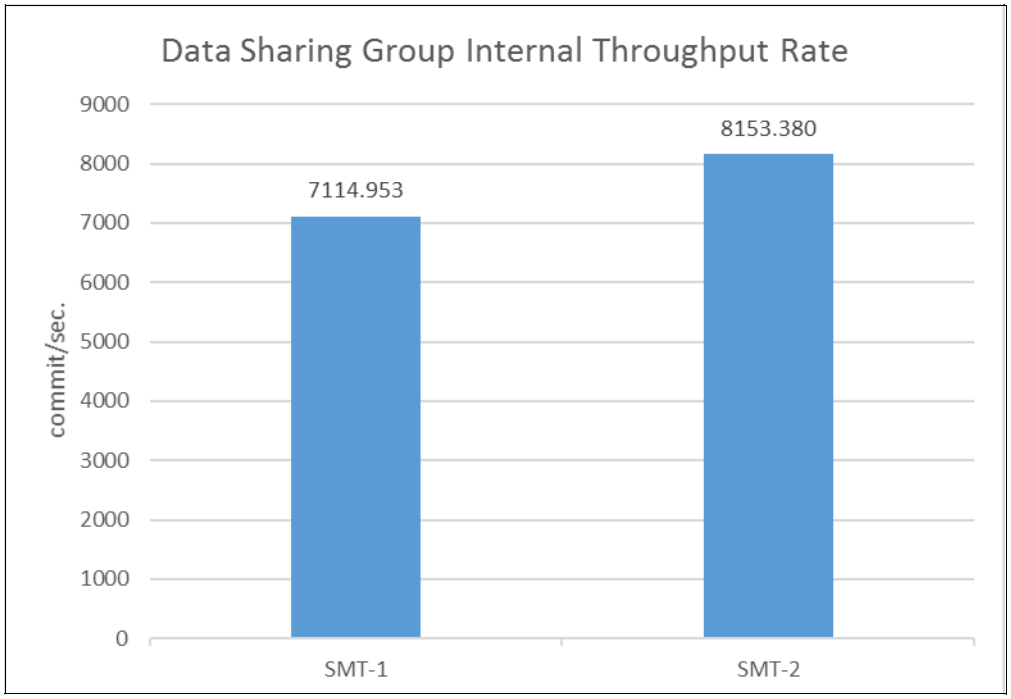

Figure 3-13 Data sharing group internal throughput rate comparison

The distribution of the transaction’s total Db2 CPU time between general CP and zIIP engines is shown in Figure 3-14 on page 106. Transaction total Db2 CPU time includes Db2 class 2 CPU time, and MSTR, DBM1 and IRLM CPU time.

As shown in Figure 3-14 on page 106, 55.8% of the total Db2 CPU time was on zIIP (free of charge) when SMT-1 was used. With SMT-2, 56.9% of the total CPU time was on zIIP; a full percentage point more than the SMT-1 case. Therefore, the total cost of computing was reduced when SMT-2 is enabled.