Table 6.11
PowerPC 620 versus IBM POWER3 and POWER4

Attribute	620	POWER3	POWER4
Frequency	172 MHz	450 MHz	1.3 GHz
Pipeline length	5+	5+	15+
Branch prediction	Bimodal BHT/BTAC	Same as 620	3 × 16K combining
Fetch/issue/completion width	4/6/4	4/8/4	4/8/5
Rename/physical registers	8 Int, 8 FP	16 Int, 24 FP	80 Int, 72 FP
In-flight instructions	16	32	Up to 200
Floating-point units	1	2	2
Load/store units	1	2	2
Instruction cache	32K 8-way SA	32K 128-way SA	64K DM
Data cache	32K 8-way SA	64K 128-way SA	32K 2-way SA
L2/L3 size	4 Mbytes	16 Mbytes	~1.5 Mbytes/32 Mbytes
L2 bandwidth	1 Gbytes/s	6.4 Gbytes/s	100+ Gbytes/s
Store queue entries	6 × 8 bytes	16 × 8 bytes	12 × 64 bytes
MSHRs	I:1/D:1	I:2/D:4	I:2/D:8
Hardware prefetch	None	4 streams	8 streams

SA—set-associative DM—direct mapped

Table 6.11 PowerPC 620 versus IBM POWER3 and POWER4.