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# Rechnerarchitektur SoSe 2017

## Exercises: Cache Performance

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# Cache Performance

Please indicate the improvement (marked with "+") and the potential damage (marked with "-") of the factors for different techniques. Also indicate, in your opinion, whether a technique is widely used or not and the hardware cost (0 for no additional cost, 1 for certain cost, 2 for high cost).

Technique	hit time	bandwidth	miss penalty	miss rate	HW cost	widely used?
small/simple caches	+			-	0	yes
pipelined caches	-	+			1	yes
nonblocking caches		+	+		2	yes
critical word first and early restart			+		2	yes
compiler-controlled pre-fetching			+	+	2	yes
hardware prefetching			+	+	2	yes
Merging write buffer			+		1	yes
Banked caches		+			1	a few