

Table 6.7: ACE permutation hardware area estimate and implementation results

Component	Estimate per unit [GE]	Count	Estimate per component [GE]
State registers	3.75	320	1200
SB-64 ₁	154 [†]	3	462
Other XORs	2.00	$3 \times (64 + 8)$	432
Permutation without muxes (estimate)			2094
round/step muxes	2.00	320	640
min load muxes	2.00	64	128
LFSR for constants	49 [†]		49
Permutation with muxes (estimate)			2911
Synthesized result [†]			2870
i_data/ o_data muxes	2.00	$6 \times 32 \times 2 = 384$	768
XORs for mode	2.00	$32 \times 2 = 64$	128
Additional load muxes	2.00	$64 \times = 256$	512
Hardware for the mode (estimate)			1408
Synthesized result [†]			1128
Complete datapath (estimate)			4319
Synthesized result [†]			4023
State machine (synthesized result [†])			281
ACE_module (estimate)			4600
Synthesized result [†]			4304

[†] pre-PAR implementation results