Total Synthesis of (+)-Chinensiolide B


Step 3: Conjugate reduction followed by *in situ* borylation. Reaction proceeds via:

B is obtained as a 3.5:1 mixture of Z/E isomers.

Please draw a transition state of step 7, that explains the regio- and stereoselectivity of this name reaction.

Favorskii rearrangement
Only the Z isomer of B reacts. >19:1 dr

10) B, D, BF$_3$OEt$_2$ (2.5 mol%) 
11) TBAF 
12) o-NO$_2$-C$_6$H$_4$SeCN, PBu$_3$ 
13) H$_2$O$_2$

Please explain the origin of stereocontrol in step 10 for the two newly created chiral centres.

Tandem diastereoselective allylboration / lactonisation reaction sequence. 
Trans-selectivity of addition can be explained by 6-membered chair-like transition state whereas absolute stereochemistry arises from Felkin-Anh attack on the chiral aldehyde.