## **Supporting Information**

## Strong, detachable, and self-healing dynamic crosslinked hot melt polyurethane adhesive

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Fig. S1 FTIR analysis of the formation of DPU-HMA and BDO-CPU.



Fig. S2 Synthetic route of the control crosslinked polyurethane (BDO-CPU) without dynamic oxime-carbamate bonds.



Fig. S3 TGA trace of DPU-HMA and BDO-CPU at a heating rate of 10  $^{\circ}$ C min<sup>-1</sup> under a nitrogen atmosphere.



Fig. S4 In situ variable temperature FTIR spectra of BDO-CPU.



Fig. S5 Strain-stress curve of DPU-HMA.



Figure S6. Lap shear specimen preparation. (a) A piece of cured DPU-HMA. (b, c) Stainless steel and DPU-HMA held together by paper clips. (d) After thermal treatment in an oven at 130 °C for 20 min, the two stainless-steel pieces were bonded together and supported a 200-g weight.